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ENVIRONMENTAL HEALTH GUIDE FOR MOBILE HOME PARKS WITH A RECOMMENDED ORDINANCE

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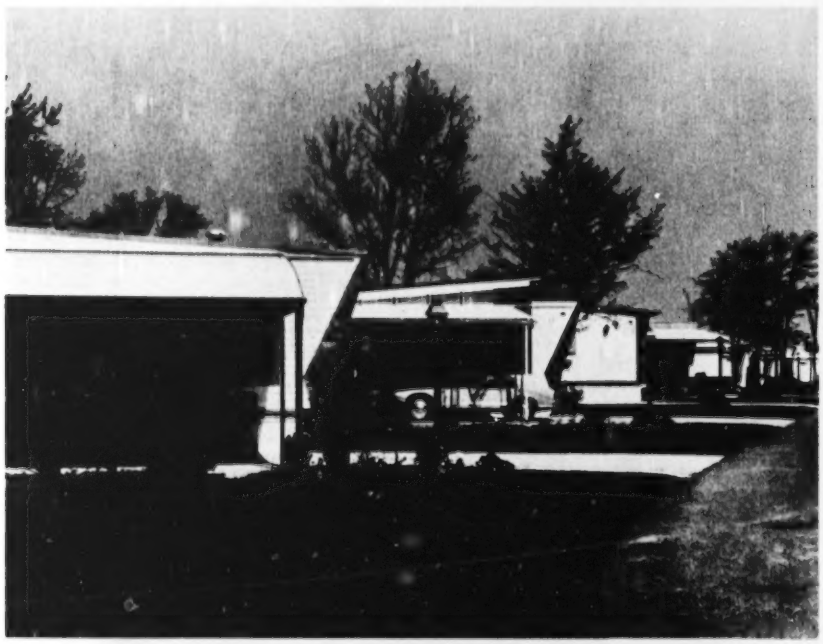
ENVIRONMENTAL HEALTH GUIDE FOR MOBILE HOME PARKS

WITH A RECOMMENDED ORDINANCE



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The purpose of this guide is to provide the latest environmental health guidelines to persons responsible for or concerned with planning, designing, operating, and maintaining mobile home parks, and for reference in developing federal, state, or local ordinances, laws, or regulations applicable to mobile home parks. A companion guide is available entitled "Environmental Health Guide for Travel Trailer Parking Areas." Topics covered include site planning, mobile home stand, water supply, sewage disposal, refuse handling, insect and rodent control, electrical distribution, fuel supply and storage, fire protection and safety, and a suggested ordinance. References are included.

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FOREWORD

DURING AND following World War II, trailer coaches provided inexpensive year-round living accommodations to large numbers of Americans, primarily construction workers and military personnel moving about the country. Units manufactured at that time were relatively small and easily transported and consequently became quite popular. However, in many instances, parking facilities for the thousands of these units in use during the post-War period were far from satisfactory because of poor site location and general insanitary conditions. Health authorities and the trailer manufacturing industry, prompted by reports of such poor conditions, asked the Public Health Service to develop a trailer court sanitation manual with suggested ordinances and regulations. Such a manual, containing recommended sanitation standards needed to meet the health and safety requirements of Federal, State, and local authorities, was issued by the Public Health Service in 1953 and was entitled "Trailer Court Sanitation".

Following 1953, in reponse to public demand and consumer trends, manufacturers began producing larger and better equipped versions of the trailer coach, known as *mobile homes*. The mobile home, usually placed at a fixed location for two years or more provides ample space, modern appliances, and other facilities for comfortable family living. This development prompted the revision of "Trailer Court Sanitation" which was reissued in 1960 under the title "Mobile Home Park Sanitation".

Since 1960, the evolution of mobile home design has continued and today mobile homes are tending to incorporate more and more of the characteristics of conventional housing into their design. Mobile home parks have tended to become more residential in character with larger lots, wider streets, off-street parking, improved water and sewage facilities, and recreation facilities. In recent years the mobile home "subdivision" has been introduced whereby the lots within a development are constructed and sold to the residents.

In view of these changing conditions, the Special Engineering Services Branch, Division of Environmental Engineering and Food Protection, Public Health Service, in close cooperation with the Mobile Homes Manufacturers Association, has developed "Environmental Health Guide for Mobile Home Parks". The purpose of this guide is to provide the latest environmental health guidelines to persons responsible for or concerned with planning, designing, operating, and maintaining mobile home parks, and for reference in developing Federal, State, or local ordinances, laws or regulations applicable to mobile home parks. A companion guide entitled "Environmental Health Guide for Travel Trailer Parking Areas" has been developed for those interested in the design, operation, and maintenance of travel trailer parking areas.

Deep appreciation must be expressed to the Mobile Homes Manufacturers Association for printing and distributing this publication as a public service.

WESLEY E. GILBERTSON, CHIEF
Division of Environmental Engineering
and Food Protection
U. S. Public Health Service

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CONTENTS

FOREWORD

INTRODUCTION 2

DEFINITIONS 3

SITE PLANNING 3
- Location and Area of Site
- Roads and Parking Facilities
- Walkways
- Mobile Home Lots
- Recreation Areas
- Service Building and Other Structures
- Service Areas
- Preparation of Plans

MOBILE HOME STAND 12
- General
- Construction
- Anchors
- Location of Service Connections

WATER SUPPLY 14
- General
- Source of Supply
- Quality and Quantity of Source
- Location and Development of Wells
- Distribution System
- Water-Service Connections
- Water Storage Facilities
- Pumping Equipment
- Disinfection
- Testing of Water Supply
- Drinking Fountains

SEWAGE DISPOSAL 18
- General
- Sewage Treatment
- Sewerage Systems
- Sewer Service Connections
- Plumbing
- Storm Water Drainage

REFUSE HANDLING 20
- General
- Refuse
- Containers
- Container Storage
- Collection
- Disposal

INSECT AND RODENT CONTROL 21
- General
- Mosquito Control
- Fly Control
- Rodent Control
- Roach Control
- Flea, Tick and Chigger Control

ELECTRICAL DISTRIBUTION 23
- General
- Distribution Lines
- Individual Electrical Connections
- Grounding
- Exterior Lighting

FUEL SUPPLY AND STORAGE 24

FIRE PROTECTION AND SAFETY 24
- General
- Heating Units

MISCELLANEOUS REQUIREMENTS 24
- Supervision
- Registration
- Communicable Disease Control
- Pets

REFERENCES 25

APPENDIX 27
- A suggested Ordinance Governing Mobile Home Parks

ENVIRONMENTAL HEALTH GUIDE FOR MOBILE HOME PARKS (with a recommended ordinance) is published as a public service by the Mobile Homes Manufacturers Association. [redacted] January, 1968 by the Mobile Homes Manufacturers Association, 20 North Wacker Drive, Chicago, Illinois 60606.

INTRODUCTION

Major growth of the mobile home industry began after World War II and was spurred by the housing shortage which existed at that time. In 1947, 60,000 mobile homes were produced. These units had an average size of 8 feet wide by 27 feet long, comparable to the size of travel trailers now produced.

Between 1947 and 1954, primarily because of market demand, lengths increased and in 1954 the first 10-foot wide units were produced. Since 1954 the size of mobile homes has steadily increased until currently almost 18 percent of the mobile homes produced are 12 or more feet wide and 55 or more feet long. It is now possible to transport separately two full-size elements, connect them on the lot to form a single mobile home, and obtain floor areas of up to 1,800 square feet.

Production figures indicate that about 1,600,000 mobile homes were produced in the period from World War II through 1964. It is estimated that about 70 percent of these mobile homes were in use in 1964 as dwelling units. To accommodate these units, there were more than 20,200 mobile home parks in the United States containing approximately 880,000 lots.

As Figure 1 illustrates, mobile homes constitute an increasing percentage of the new housing supply each year. In 1960, shipments of new mobile homes accounted for 9.6 percent of all new private, non-farm, single-family housing units. By 1963, the percentage had increased to 13.4 and even further increases are indicated.

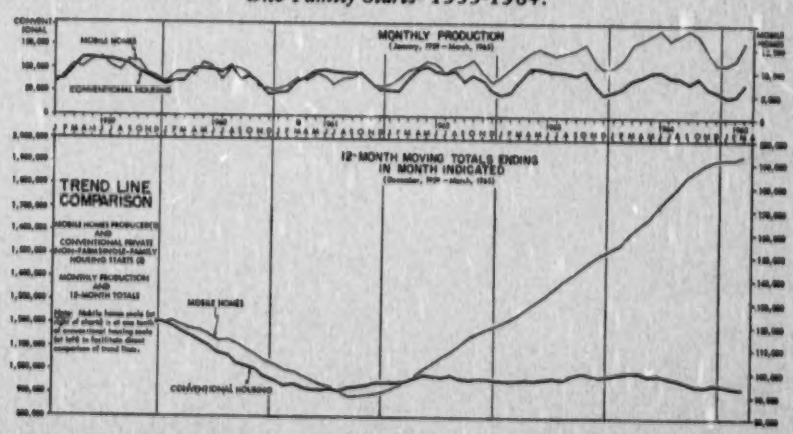
The number of Americans living in mobile homes is likewise increasing. In 1956, approximately 2 million people lived in mobile homes and by 1963 the number increased to 4 million.

To protect the health and safety of the public and assure quality construction, most manufacturers now construct their units in conformance with the requirements of the American Standards Association, PLUMBING, HEATING, AND ELECTRICAL SYSTEMS IN MOBILE HOMES, A 119-1-1963 (see reference No. 1). Adherence to these standards assures that the mobile home will provide reliable, healthful, and safe living conditions for the occupants provided the unit is placed in a correspondingly adequate environment.

Unfortunately, it is not always possible to find an adequate environment in which to place a mobile home. As Fred Bair states in MOBILE HOMES AND THE GENERAL HOUSING SUPPLY (see reference No. 2). "Availability of suitable space for units continues to be a limiting factor." This can be attributed, in part, to the rapid growth of the mobile home industry, the continuing evolution of mobile home design which necessitates changes in park design, and the lack of proper State and local legislation to control the design, construction, and operation of mobile home parks.

The information and recommended standards in this guide were developed after careful study of many existing and proposed housing codes (one such proposed code was conducted by the New York State Division of Housing and Community Renewal under a Housing and Home Finance Agency Demonstration Grant) to help minimize or eliminate health and safety hazards in mobile home parks. Adherence to the recommendations of this guide in the design and operation of mobile home parks provides added assurance of an adequate environment for the placement of modern mobile homes.

Fig. 1 Mobile Home Units Shipped by Manufacturers[1] vs. Private Conventional One-Family Starts[2] 1959-1964.



From "Mobile Homes and the General Housing Supply" by Frederick H. Bair, Jr.

1 "Mobile Home Sales, Stocks, and Shipments", Marketing Information Associates, Chicago, Illinois.
2 "Construction Reports—Housing Starts", U. S. Bureau of the Census.

DEFINITIONS

Health Authority: The legally designated health authority (or its authorized representative) of the political subdivision concerned.

Mobile Home: A transportable, single-family dwelling unit suitable for year-round occupancy and containing the same water supply, waste disposal, and electrical conveniences as immobile housing.

Mobile Home Lot: A parcel of land for the placement of a single mobile home and the exclusive use of its occupants.

Mobile Home Park: A parcel of land under single ownership which has been planned and improved for the placement of mobile homes for nontransient use.

Mobile Home Stand: Part of an individual lot which has been reserved for placement of the mobile home, appurtenant structures, or additions.

Mobile Home Subdivision: A parcel of land subdivided into lots, each lot individually owned and utilized as the site for placement of a single mobile home and its facilities.

Service Building: A structure housing toilet, lavatory, and such other facilties as may be required.

Sewer Connection: The sewer connection consists of all pipes, fittings, and appurtenances from the drain outlet of the mobile home to the inlet of the corresponding sewer riser pipe of the sewerage system serving the mobile home park.

Sewer Riser Pipe: That portion of the sewer lateral which extends vertically to the ground elevation and terminates at each mobile home lot.

Water Connection: The water connection consists of all pipes, fittings and appurtenances from the water riser pipe to the water inlet pipe of the distribution system within the mobile home.

Water Riser Pipe: That portion of the water supply system serving the mobile home park which extends vertically to the ground elevation and terminates at a designated point at each mobile home lot.

SITE PLANNING

Location and Area of Site

Sites selected for mobile home parks should be well-drained and free from topographical or geological hindrances or other conditions unfavorable to a proper residential environment.

Sites should not be located near swamps, marshes or other breeding places for insects and rodents, or heavy industrial zones with objectionable odors or noise. The site should have good natural drainage, or a storm-drainage system should be provided. Drainage from the park should not endanger any water supply. The site should be graded to eliminate depressions and provide a uniform ground surface. Steep slopes should be graded as much as possible to minimize the hazards they present.

Because mobile homes are for residential use, they should preferably be placed in residentially zoned districts rather than in commercial or industrial districts. Wherever possible, mobile home parks should be so located as to be accessible to public water and sewerage systems.

The area of a mobile home park must be sufficient to accommodate (1) the desired number of mobile home lots (it is recommended that a minimum of 50 mobile home lots be constructed in any new park to obtain a better designed, more economical plan), (2) parking areas for motor vehicles, (3) access roads and walkways, and (4) recreation facilities. Additional area must be provided for management buildings, service buildings, or other structures to be included.

Experience has shown that mobile home park designs should be based on local conditions since neither the repetitious application of one lot design nor any arbitrary conglomeration of various modules will result in good planning. Local conditions that might affect a particular site plan include: the size, shape, and topography of the site and surrounding area; land costs; local codes and ordinances; the uses of adjacent property; the availability of water supply and sewage disposal facilities; and the needs of any special groups in the park, such as the elderly.

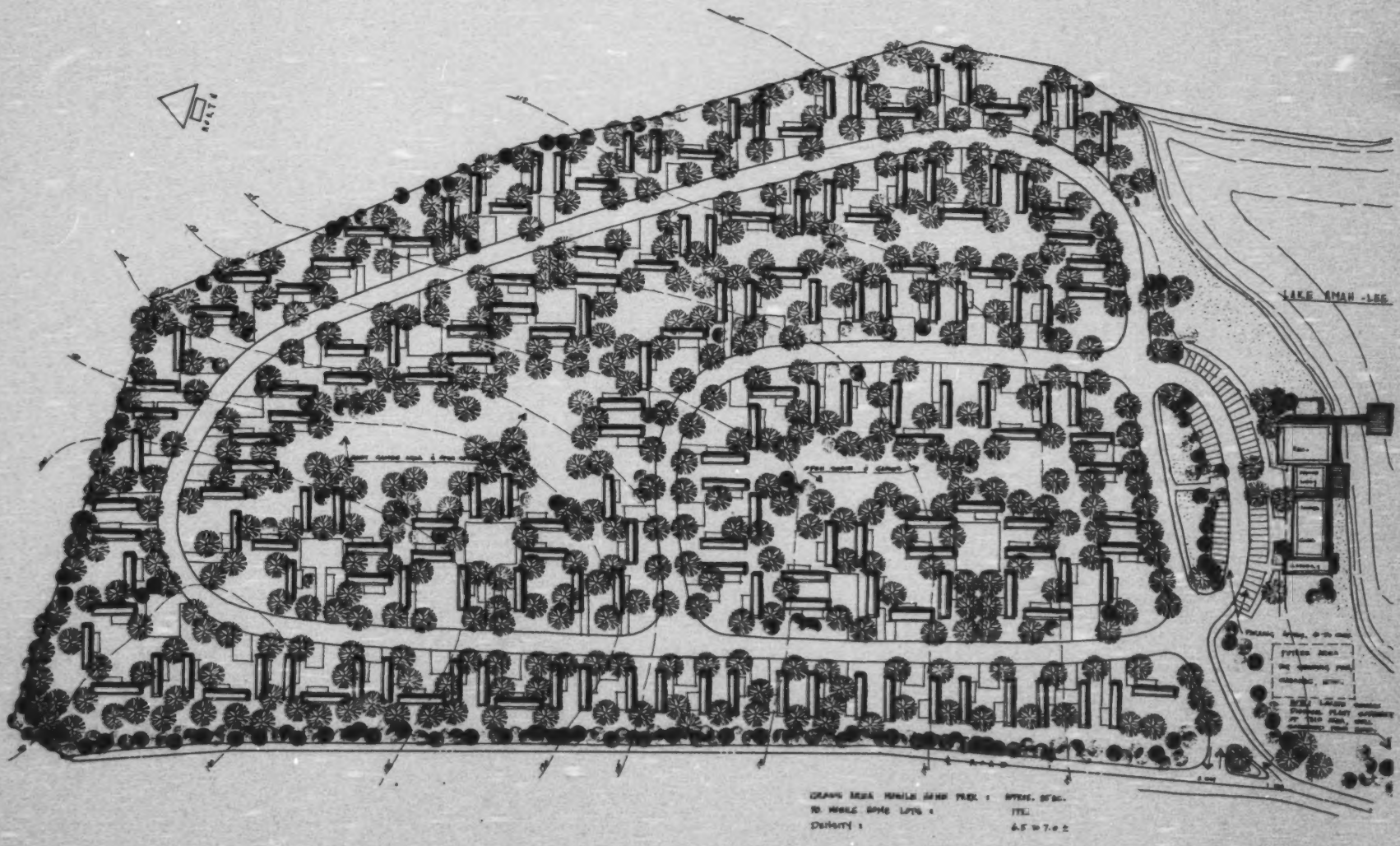
The best designs are those which make effective use of existing topographical conditions and properly blend in an adequate amount of open area recreation area, and other common-use area. Figures 2, 3, and 4 illustrate possible modules and arrangements of mobile homes.

Before land is acquired for a mobile home park the health authority should be consulted regarding the compliance of the proposed site with existing health regulations. Other local agencies, such as zoning or planning commissions, should also be consulted.

Roads and Parking Facilities

All roads in mobile home parks should provide for convenient vehicular circulation. Pavements should be of adequate widths to accommodate anticipated parking and traffic loads.

Fig. 2 A Mobile Home Park Design



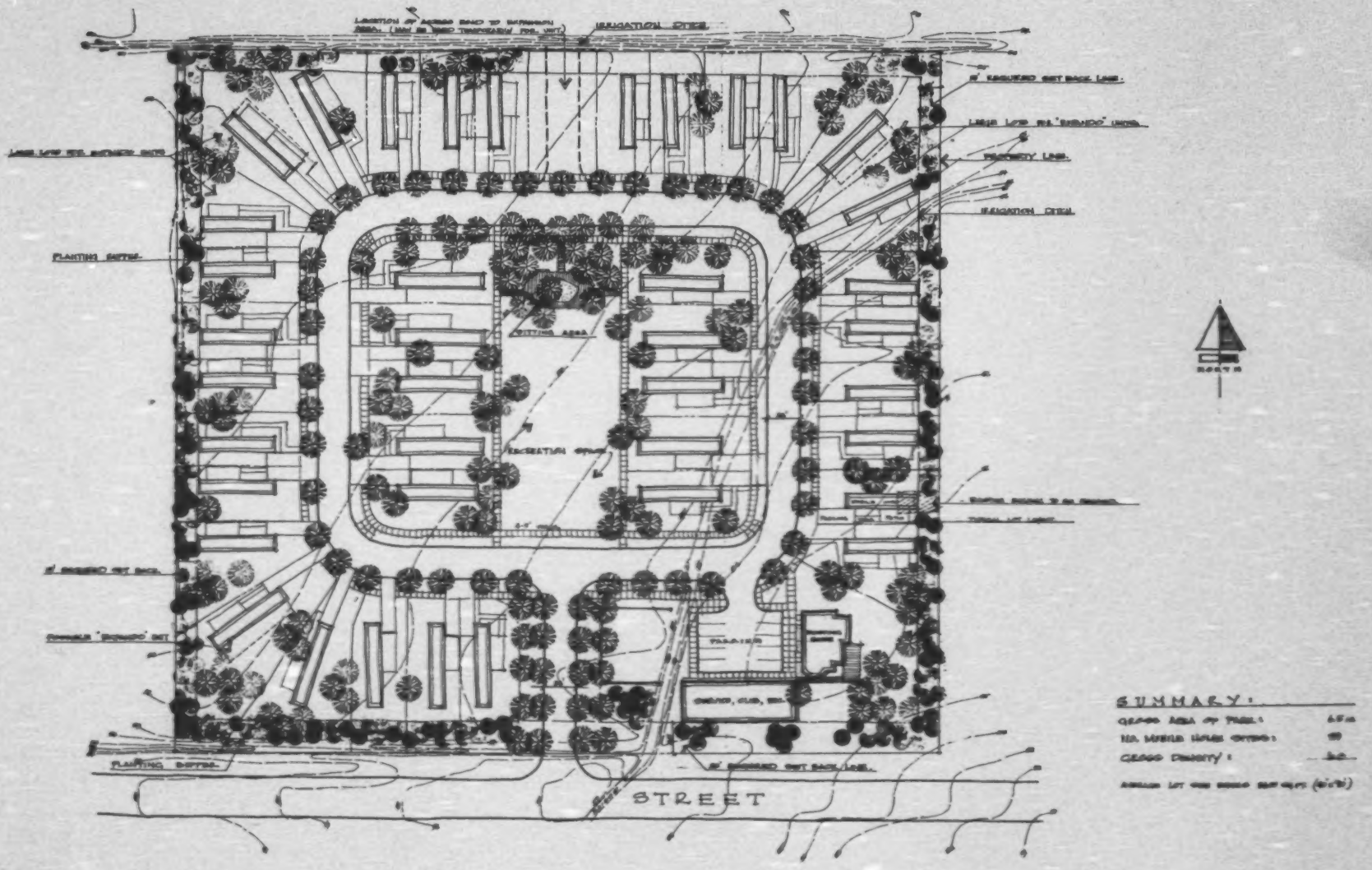
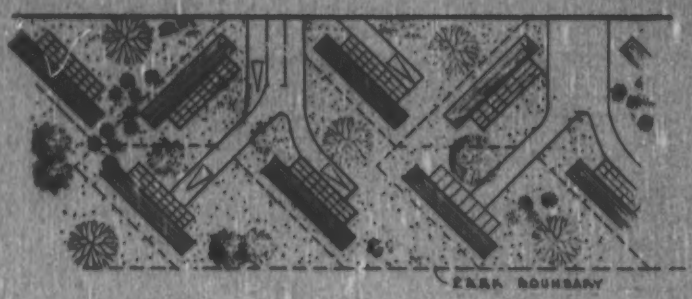


Fig. 3 *A Mobile Home Park Design*

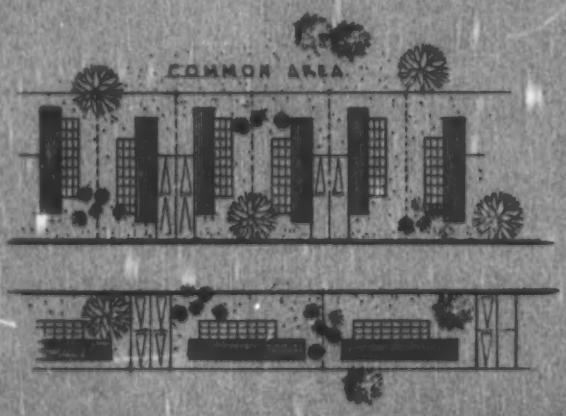
TANDEM CAR PARKING

TANDEM & PARALLEL CAR PARKING

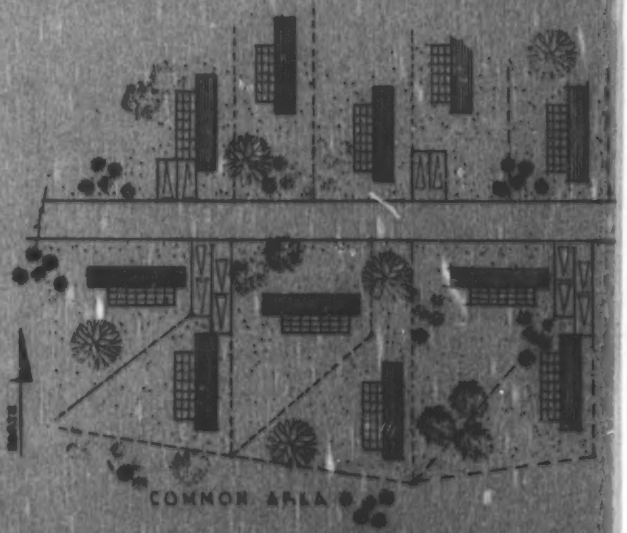
TYPICAL TRANSITION IN ORIENTATION OF MOBILE HOME STAND



REAR LOT ARRANGEMENT AT PARK BOUNDARY
INDIVIDUAL DRIVEWAY FOR EACH LOT



BOTH PARALLEL & PERPENDICULAR SETTING OF MOBILE HOMES TOWARD STREET



VARIOUS COMBINATIONS. AN ORDERLY SCHEME WITHOUT MONOTONY. GENERAL ORIENTATION TOWARD SOUTHWEST

COMMON AREA

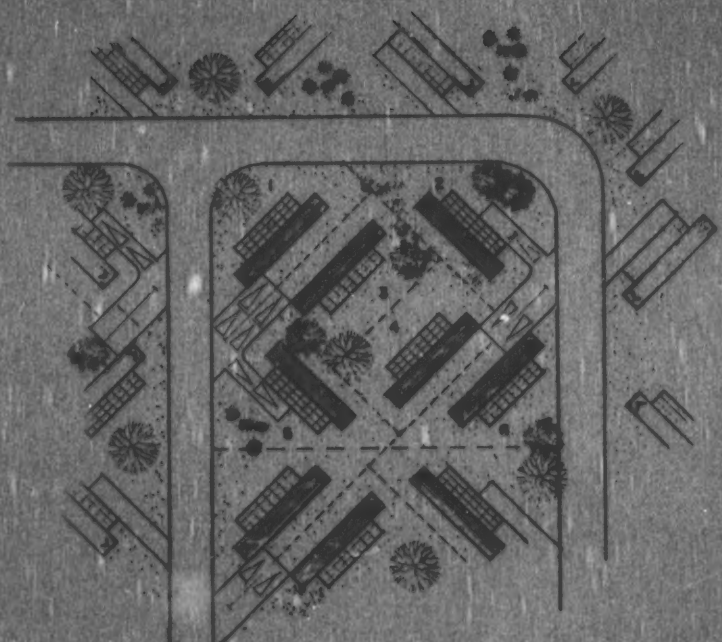
FRONT YARD & REAR YARD ORIENTAION.
COMBINED UTILITY CORE & CAR
PARKING. BIG SIDE YARD

REAR LOT ARRANGEMENT. OVERALL HIGH
DENSITY COMBINED WITH SPACIOUS GROUPING

Fig. 1 — Typical Mobile Home Modules and Arrangements

COMMON AREA

FRONT YARD & REAR YARD ORIENTATION.
DEEP LOTS.
HIGH DENSITY POSSIBLE



SIX UNIT MODULE FOR INTERIOR BLOCKS

Entrance streets which connect the internal streets of a mobile home park to a public street or road should have a minimum width of 34 feet if parking is permitted along both sides or 27 feet if parking is permitted on only one side. If parking is not allowed, the width can be reduced to 24 feet provided the entrance street is more than 100 feet long and does not provide access to abutting mobile home lots within the first 100 feet.

All typical internal streets should have a minimum width of 24 feet. However, the width of minor internal streets can be reduced to 18 feet if parking is prohibited on both sides. Minor streets are (1) two-way streets which are less than 500 feet in length and serve less than 25 mobile homes and (2) one-way streets, of any length, which provide access to abutting mobile home lots on one side only. Cul-de-sacs should be limited in length to 1,000 feet and should be provided with a surfaced turning circle of at least 60 feet in diameter.

The proper design of street intersections is an important safety consideration. Within 100 feet of intersections, streets should be at approximately right angles. Street intersections should be at least 150 feet apart and the intersection of more than two streets at one point should be avoided.

Street grades should not be excessive, especially at intersections. It is suggested that grades be less than eight percent whenever possible; however, short runs of up to 12 percent can be used if necessary.

All streets should be provided with a smooth, hard, and dense surface which is properly drained and durable under normal use and weather conditions.

Off-street parking, in the form of parking bays or individual parking spaces on each lot, should be provided to reduce traffic hazards and improve the appearance of the mobile home park. Parking spaces should be provided in sufficient number to obtain a ratio of at least five spaces per every four mobile home lots in order to accommodate two-car tenants and guests. Every parking space should be designed and located so as to be convenient for use and should be within 200 feet of the mobile home it is to serve.

Walkways

All mobile home parks should be provided with walkways where pedestrian traffic is expected to be concentrated, such as around recreation, management, or service areas and between individual mobile homes. It is recommended that these common walks be at least 3½ feet wide.

Walks should be provided on each individual lot to connect the mobile home with a common walk, street, or other paved surface. Such walks should be at least 2 feet wide.

Mobile Home Lots

Every mobile home lot should contain at least 2,500 square feet of area to accommodate modern mobile homes and their appurtenances and to assure adequate clearances between mobile homes and other structures. Many of the mobile homes presently being manufactured are between 50 and 60 feet long and 10 and 12 feet wide. Some are as large as 70 feet long and 24 feet wide. These larger units require correspondingly larger lots. Lot sizes of 3,000 square feet and more are frequently used to accommodate the larger mobile homes and provide more privacy to residents. Some other advantages of larger lots are that they facilitate later changes in design, such as the addition of carports or other accessory structures to mobile homes, and they also provide assurance against premature obsolescence of the mobile home park. All lots within any mobile home park should not be the same size and shape if different-size mobile homes are to be accommodated and if effective use is to be made of the available space.

It is generally agreed that small lots contribute to overcrowding and create an undesirable appearance, especially when used to accommodate the larger mobile homes. A practical program to eliminate undersized lots should be developed by the local governmental agency having authority that is agreeable to all organizations concerned, including mobile home park operators and owners, the local health authority, and other involved groups. Once adopted, such a program should be enforced to assure that all mobile home lots not meeting established minimum space requirements will be eliminated.

There should be a clearance of at least 15 feet between adjacent mobile homes and between mobile homes and other structures except that mobile homes placed end-to-end need a clearance of only 10 feet when opposing rear walls are staggered. Mobile homes should be at least 25 feet from any park property line abutting upon a public street or highway, 15 feet from all other park property lines, and 10 feet from any area such as a park street, a common parking

area, or common walkway. When determining clearances, any accessory structure which has a horizontal area exceeding 25 square feet, located within 10 feet of a window on a mobile home, should be considered as part of the mobile home if the accessory structure has an opaque top or roof higher than the window.

If driveways are provided for individual mobile home lots, they should be at least 8 feet wide, with an individual 2 feet added if they also serve as walks. The on-lot parking space served by the driveway should have minimum dimensions of 9 feet wide by 20 feet long.

It may be desirable to provide storage facilities for each lot in order to discourage the storing of objects under mobile homes. Many mobile homes presently built do not contain ample space for storing equipment such as rakes, shovels, garden hose, lawn chairs, and other similar items. The storage of such items under a mobile home is undesirable since they can provide a potential harborage for rodents, snakes, insects, and other pests.

Recreation Areas

Mobile home parks which accommodate 25 or more mobile homes should be provided with at least one easily accessible recreation area. When several different age groups are to be provided for, it may be desirable to have two or more separate areas to serve the varied interests.

For safety reasons, recreation areas should always be located where they are free of traffic hazards. It may also be desirable to provide some sort of buffer zone around the area such as trees, bushes, or other vegetative growth. A recreation area can be located adjacent to recreation or service buildings, if provided, for efficient construction, use, and maintenance of both the area and the structure.

Recreation areas should be provided in a ratio of at least 100 square feet of space per each mobile home lot. However, many planners will provide more recreational space than the minimum, depending on the availability of recreational facilities in the neighborhood of the mobile home park. Swimming pools, recreation buildings, and child play areas can be considered as fulfilling part of the total requirement for recreational area. Each outdoor recreation area should contain at least 2,500 square feet of area to assure adequate space for all activities.

Swimming pools should be constructed and operated in accordance with all applicable State and local requirements and regulations. Where local regulations are inadequate, or do not exist, the provisions of the SUGGESTED ORDINANCE AND REGULATIONS COVERING PUBLIC SWIMMING POOLS (see reference No. 3), prepared by the Joint Committee on Swimming Pools and Bathing Places can be applied.

Service Buildings and Other Structures

Every mobile home park should be provided with a service building containing emergency sanitary facilities consisting of at least one lavatory and one flush toilet for each sex per each 100 mobile home lots. Where feasible, the consolidation of sanitary, laundry, management, and other service facilities in a single building and location is recommended if the single location will adequately serve all mobile home lots. Consolidation is preferable for efficient construction, use, and maintenance of all facilities. Figure 5 illustrates such a multi-purpose building.

The construction of service buildings and other park structures should conform to local building code requirements. All park buildings should be of permanent construction with a weather-resistant exterior finish and an interior finish of moisture-resistant material which will stand frequent washing and cleaning.

All rooms containing plumbing fixtures should have floors that are impervious to water, easily cleaned, and sloped to floor drains connected to the sewerage system. The floors and the plumbing fixtures should be maintained in a sanitary condition at all times by daily washing and disinfecting. Walls and partitions around toilets, lavatories, and other plumbing fixtures should be constructed of nonabsorbent, waterproof material or covered with moisture-resistant material.

The rooms of all buildings should be well ventilated and all exterior openings should be covered with 16-mesh screen. Rooms containing sanitary or laundry facilities should be provided with at least one openable window or skylight facing directly outdoors or a mechanical device which will adequately ventilate the room. The minimum total window area, measured between stops, should be 10 percent of the floor area of the room. When design permits, windows should be placed high in the wall and in more than one wall if possible.

Service buildings should have heating facilities capable of maintaining a temperature of 70° F and capable of heating sufficient hot water for all lavatory and laundry fixtures.

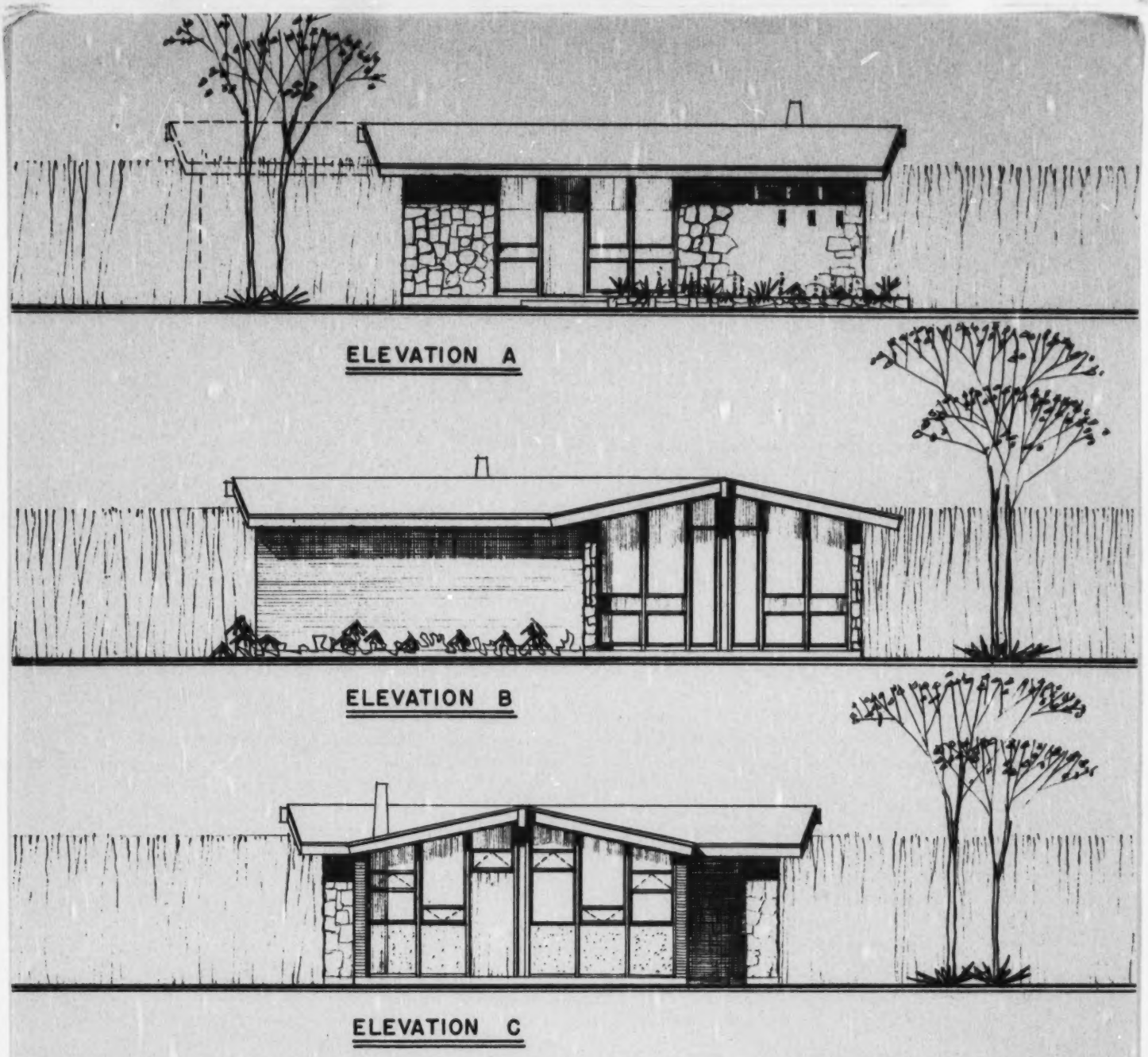
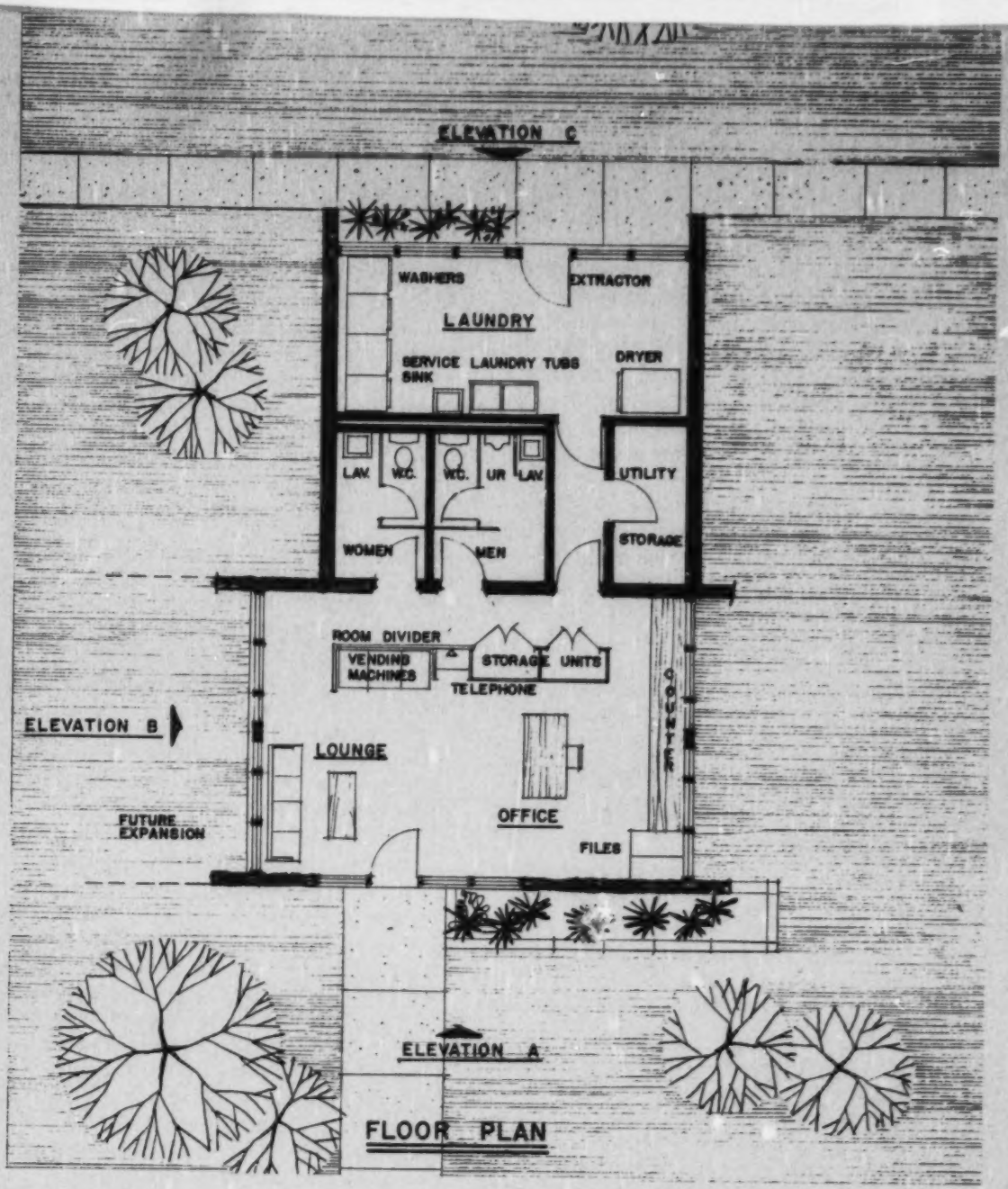


Fig. 5 A Combined Management-Service Building

Toilet and laundry rooms should be well-lighted at all times since adequate lighting will encourage cleanliness. The average illumination level for "general seeing tasks" in these rooms should be 5 footcandles. Since more exacting visual tasks require higher levels of illumination, laundry room work areas and toilet room mirrors should have average illumination levels of at least 40 footcandles. Daylight should be used to supplement lighting requirements whenever possible.

Men's and women's toilet rooms should be distinctly marked and separated by a sound resistant wall. A screen or wall should prevent direct view of toilet compartments when the exterior doors are open. Each water closet should be in a separate compartment equipped with a self-closing door.

The owner or operator of a mobile home park should provide additional facilities in the service building in accordance with anticipated demand for such facilities. Laundry equipment, ice-making machines, and public telephones are extra



conveniences which park residents will appreciate.

When considering the installation of laundry facilities within a mobile home park, it should first be determined that such equipment will have sufficient use, since unused facilities can create economic and maintenance problems for the park owner or operator. Factors which should be evaluated include the proximity of coin-operated public laundries or commercial laundries and the number of park residents who will have automatic washers installed in their mobile homes.

Service Areas

Where areas for the outdoor drying of clothes are necessary, it has been found that approximately 2,500 square feet per 100 mobile home lots is adequate with rotated use. It may be desirable to locate the drying yard near the service or laundry building, if provided, and as far as possible from roadways or traveled areas. It has also been

found practical to provide clothes-drying facilities on the individual mobile home lots provided that the drying units are standardized and are properly located and installed. Where the clothes-drying facilities are permitted on the individual mobile home lots, it is suggested that they be provided as a part of the basic facilities to assure that the same type of unit, located in the same general area of each mobile home lot, is used throughout the park. Umbrella-type lines in permanent sockets are recommended. The use of individual drying facilities also requires that the owner or operator develop and enforce rules that permit clothes drying only on the facilities provided. All clothes-drying areas, whether centrally located near the service building or on the individual mobile home lot, should be adequately screened from view so as not to detract from the appearance of the mobile home park or be objectionable to residents of adjacent property.

If desired, car-wash and other general purpose facilities can be provided as a service to residents of the mobile home park. Any such facilities should be properly constructed and preferably screened from view.

Preparation of Plans

Layout plans of proposed mobile home parks should be prepared and submitted to the health, zoning and other responsible authorities for review and approval prior to construction. A description of the site location, with regard to highways, streets, and landmarks should accompany the layout plans.

The plans should show: (1) the area and dimensions of the site; (2) the number, location, and dimensions of all mobile home lots; (3) the location and width of roadways, automobile parking facilities, and walkways; (4) the location of service buildings and any other proposed structures; (5) plans and specifications of the water supply and sewage and refuse disposal facilities, including the location of water and sewer lines and riser pipes; (6) plans and specifications of all buildings constructed or to be constructed within the mobile home park; and (7) the location and details of lighting and electrical systems.

Depending on the extent of the facilities to be provided, additional plans may be required to show the location of fire hydrants; plans and specifications of swimming pools and other special recreational facilities; special landscaping; fuel oil and LP-gas storage facilities; and details of service facilities such as car-wash or clothes-drying areas.

MOBILE HOME STAND

General

A stand should be provided on every mobile home lot to accommodate the mobile home and its attached accessory structures. The stand should provide an adequate foundation and anchoring facilities to secure the mobile home against any accidental movement.

The stand should not heave, shift, or settle unevenly under the weight of the mobile home as a result of any frost action, poor drainage, vibration, or other such forces.

Construction

The mobile home stand should be graded to obtain adequate surface drainage. This can be achieved by using either a crown or a cross-gradient. The grade of the stand and its accessway should also be such as to allow easy placement of the mobile home.

The material used in constructing the stand should be durable and capable of supporting the expected load regardless of the weather. Reinforced cement concrete runways are often used to support mobile homes, but well-compacted gravel and bituminous concrete materials are also suitable when properly used.

Because the mobile homes now produced vary in size and shape, the stands should be individually designed to fit the dimensions of the mobile homes that will be accommodated. Consideration should also be given to the fact that many mobile home owners may later want to add carports or other accessory structures. If future additions are anticipated, the stand should be so located on the mobile home lot that the proper clearances can be maintained between the mobile home and other structures.

Patios are frequently constructed as an integral part of the mobile home stand. The patio area provides useful outdoor living space for mobile home occupants and can also be utilized for future additions to or expansions of the mobile home. It is recommended that patios have a minimum size of about 180 square feet. Often the construction of the patio is delayed until after the mobile home is placed in order to best fit the patio to the design of the mobile home.

Anchors

It is essential that some means be provided at each stand to anchor mobile homes and secure

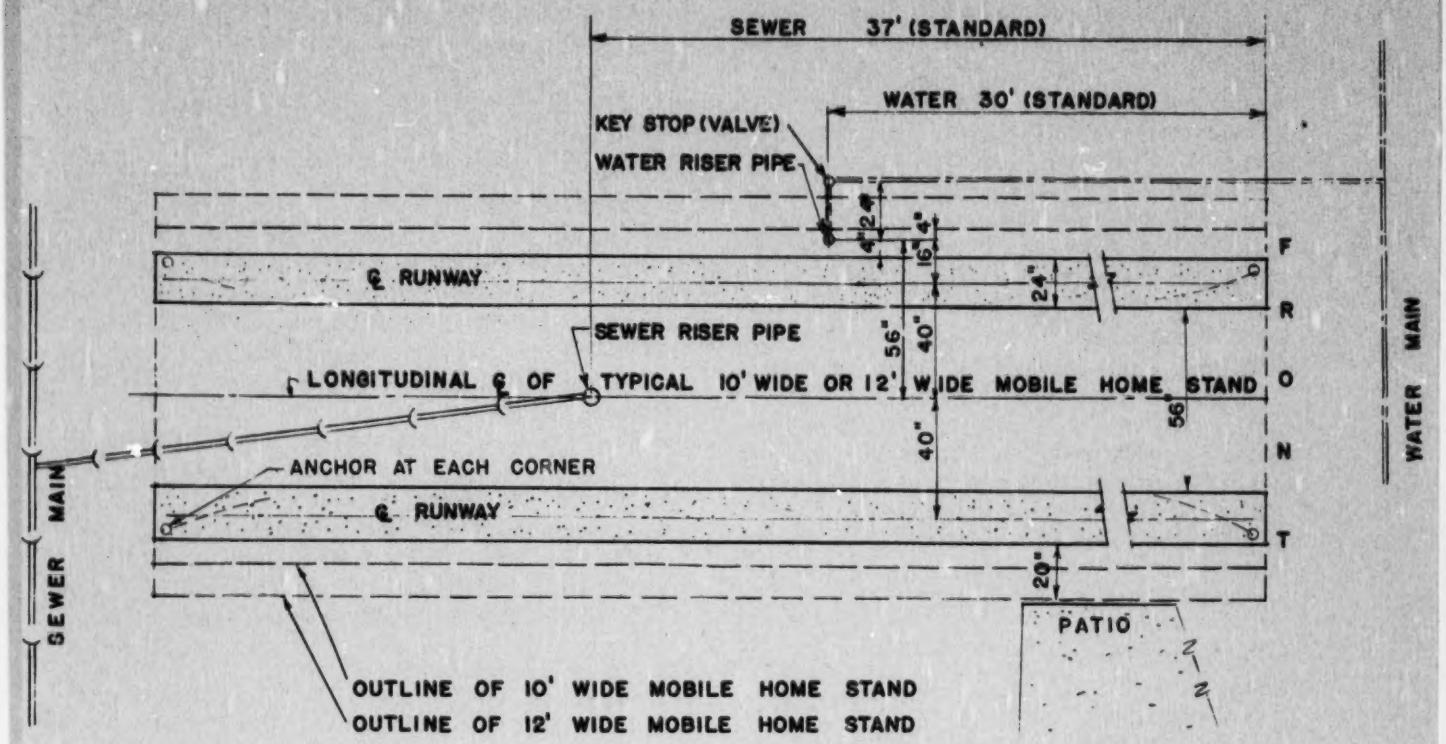


Fig. 6 Details of Typical Mobile Home Stand

them against over-turning forces. Anchors such as cast-in-place concrete "dead men", eyelets imbedded in concrete, screw augers, or arrowhead anchors are necessary since few mobile homes are permanently fastened to foundation.

Anchors should be provided at least at each corner of the mobile home and each anchor should be able to withstand a tension force of at least 2,800 pounds. The cable or other device connecting the mobile home and anchor should, of course, also be able to withstand a tension of at least 2,800 pounds.

Location of Service Connections

Individual connections should be provided at each mobile home stand for water, sewerage, electricity, telephone, gas and other services.

The location of the water riser pipe on the stand is of great importance. Two principles should be carefully considered. First, a location should be selected which is as close as possible to the service connection of the mobile home. This reduces long service runs, long heater tapes and resultant high electric bills and water-line freezing. Second, there should be a safe clearance between the water and sewer riser pipes. A good location for the water riser pipe is 9½ feet from the edge of the patio measured across the mobile home stand and 30 feet longtidunal from the front edge of the stand. The front edge of the stand should coincide with the front wall of the mobile home.

The sewer riser pipe should be located so as to provide a near-vertical connection between the riser pipe and the mobile home drainage outlet.

Drain outlets on mobile homes are standardized to a certain extent. AMERICAN STANDARD FOR PLUMBING, HEATING, AND ELECTRICAL SYSTEMS IN MOBILE HOMES A 119.1 (see reference No. 1) specifies that the drain outlet shall be of 3 inch diameter and be located in the rear third section of the mobile home. The location of the sewer inlet on the stand should be as close as possible to the drain outlet on the mobile home. In order to achieve this it is recommended to locate the riser pipe under the mobile home. A good location is 5 feet from the patio measured across the stand and 37 feet longitudinal from the front edge of the stand. This location will serve most of the mobile homes now being built.

Electrical, telephone, and gas connections can be located wherever they will be most convenient. It is best, however, to place them on the same side of the mobile home as the water service connection with a 5 foot spacing between each connection. Figures 6 and 7 illustrate typical plans for the location of service and utility connections.

WATER SUPPLY

General

An adequate and safe supply of water under pressure should be provided to each mobile home lot. The source and distribution system should be satisfactorily constructed and approved by the health authority having jurisdiction.

Records should be kept of the location of water lines, valves, meters, connections, and other appurtenances to facilitate repairs or inspections when necessary.

Source of Supply

When feasible, water should be obtained from an approved public water supply system to obtain the advantages of qualified supervision which provides added assurance that the quality and quantity of water will be adequate at all times for domestic and fire-fighting purposes. Where public water supply systems are not available within a reasonable distance for extension to a mobile home park, the best available private water supply source should be developed and constructed in accordance with plans approved by the health authority.

Wells should be properly constructed, the drilled or driven type being preferred. Wells and springs should be properly protected against any possible contamination and should be used only if they are determined to be bacteriologically safe and can be protected from sources of contamination. All surface water supplies, regardless of source, are subject to chance contamination and therefore require some form of treatment. The extent or degree of treatment needed is governed by the chemical and physical characteristics of the raw water and the extent of contamination or pollution that reaches the source intake.

Quality and Quantity of Source

An adequate and palatable supply of water, complying with applicable State or local requirements, or in the absence thereof, with the standards contained in the Public Health Service DRINKING WATER STANDARDS (see reference No. 4), should be provided in each mobile home park. The source should be capable of supplying at least 150 gallons per mobile home lot per day. However, additional needs for lawn watering, car washing, main leakage, and other water uses, can increase the water demand to 250 gallons per mobile home lot per day. Also, many mobile homes have garbage grinders and automatic laundry machines, both of which will substantially increase water needs.

Location and Development of Wells

Well sites should be at a point of high elevation and developed in such a manner that neither surface nor underground contamination may enter the water supply from any source, such as pit privies, subsurface pits, or septic-tank systems. The danger of surface contamination should be minimized by sealing the annular space around the well casing to a depth of at least 10 feet, by providing a 4 inch concrete slab around the top of the casing at least 2 feet in radius, and by installing a sanitary well seal over the casing.

Safe distances from sources of contamination depend upon such local factors as the level of the ground water table and the nature of underground rock formations. The following minimum distances (see reference No. 6) are usually required between wells and contamination sources, however, local health department requirements should govern.

Contamination Sources	Well or suction line (distance in feet)
Building Sewer	50
Septic Tank	50
Disposal Field	100
Seepage Pit	100
Dry Well	50
Cesspool	150

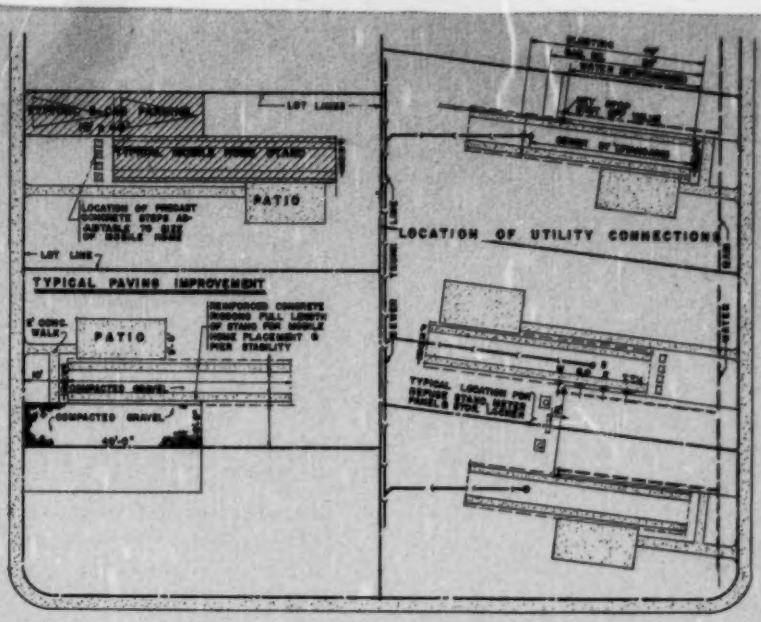


Fig. 7 Typical Site Improvements

If necessary, sewer system lines may be located as close as 10 feet to wells provided the sewers are of cast iron with leaded or mechanical joints.

The minimum depth at which water can be obtained varies with different soil formations and other local conditions. Preferably, water should not be drawn from wells with a depth of less than 20 feet, and in no case from a well of less than 10 feet in depth.

Distribution System

The water distribution system should be constructed of cast iron, wrought iron, copper, asbestos cement, or other material specifically approved for such use. All piping, fixtures and other equipment should be constructed and maintained in accordance with State and local regulations.

Precautions should be taken in laying all water pipe. Except as permitted by State or local plumbing and health codes, underground water service pipes and sewer lines should be at least 10 feet apart horizontally and separated by undisturbed or compacted earth. Water pipe should not be laid in water, nor where it can be flooded by water or sewage during the construction process. Dirt and other contaminating material should be excluded from the pipe. All water pipe should be disinfected after construction and before being placed into service.

To meet ordinary domestic needs, the water distribution system should supply water at a flow pressure of at least 20 pounds per square inch at all service connections. The pipe sizing and other design features of the system should be based upon the estimated maximum water demand rather than the average daily demand. The following table shows the instantaneous maximum water demand which may be expected for any given number of mobile homes through the first 200. An increase in total demand of about one gallon per minute should be anticipated for each additional mobile home over 200.

The table is based upon information in the REPORT OF PUBLIC HEALTH SERVICE TECHNICAL COMMITTEE ON PLUMBING STANDARDS (see reference No. 5).

ESTIMATED MAXIMUM WATER DEMAND FOR MOBILE HOME PARKS

Number of Mobile Home Lots	Quantity (gpm)
25	65
50	105
75	145
100	180
150	235
200	285

If the domestic water system is to supply sufficient water for fire-fighting purposes in accordance with requirements of the National Fire Protection Association, it may be necessary to use design values greater than those just stated for pressure and quantity of flow (refer to section on fire protection).

Water-Service Connections

An adequate water-service connection should be provided at each mobile home lot. The recommended location of the water riser pipe on the lot is illustrated in Figure 7.

The water-service connection should utilize a riser pipe of at least ¾ inch diameter, terminating at least 4 inches above the ground surface, surrounded and supported by sand backfill, and protected against freezing. The ground surface around the riser pipe should be graded so as to divert surface drainage away from the connection.

A service box with a shut-off valve should be located in a convenient and accessible place near the riser pipe. The shut-off valve should be installed below the frostline. Stop-and-waste valves should not be installed in an underground service line, a stop-and-waste valve being any valve that permits drainage through a port or drain hole provided in the valve.

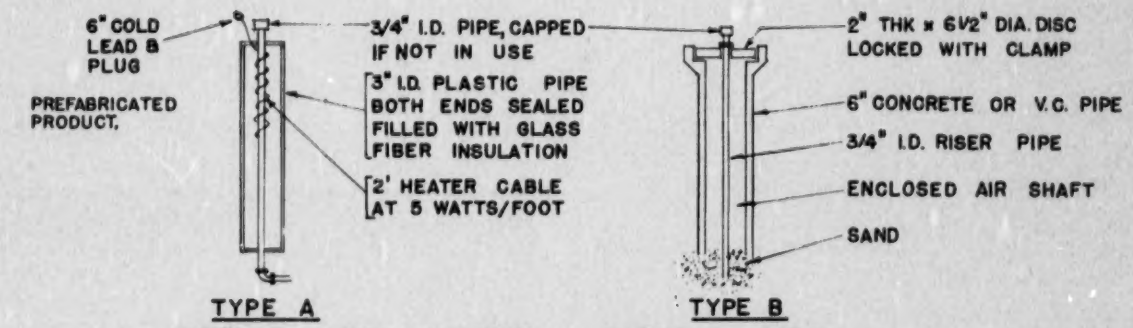
The riser pipe outlet should be threaded so a screw connection can be made between the outlet and the mobile home water piping system and the outlet should be plugged or capped when not in use. Each water-service connection should also have a shut-off valve and a nonfreezing wall hydrant located on the water pipe outlet of the mobile home.

Flexible metallic tubing, such as copper, is suggested for connecting the mobile home to the riser pipe because it provides an effective method of directly grounding the mobile home to the water supply system and it facilitates the use of electrical heater tapes, which can be used during cold weather to effectively control freezing. It is recommended that the riser pipe be designed to prevent freezing, particularly in the colder climates. A suggested design for a mobile home water-service connection is shown in Figure 8.

Water Storage Facilities

Water storage facilities must be provided when the water supply system cannot meet peak demands. If the rate of supply from a private well, public main, or other means of supply is not greater than or equal to the peak demand, storage facilities must be included in the distribution system.

Water storage can be provided by pressure tanks, elevated or ground level storage tanks, and ground level reservoirs. Pressure tanks should only be used to supply momentary peak demands


6" COLD LEAD & PLUG
PREFABRICATED PRODUCT,
3/4" I.D. PIPE, CAPPED IF NOT IN USE
3" I.D. PLASTIC PIPE BOTH ENDS SEALED FILLED WITH GLASS FIBER INSULATION
2' HEATER CABLE AT 5 WATTS/FOOT
2" THK x 6½" DIA. DISC LOCKED WITH CLAMP
6" CONCRETE OR V.C. PIPE
3/4" I.D. RISER PIPE
ENCLOSED AIR SHAFT
SAND
TYPE A
TYPE B

DETAIL OF WATER RISER PIPE

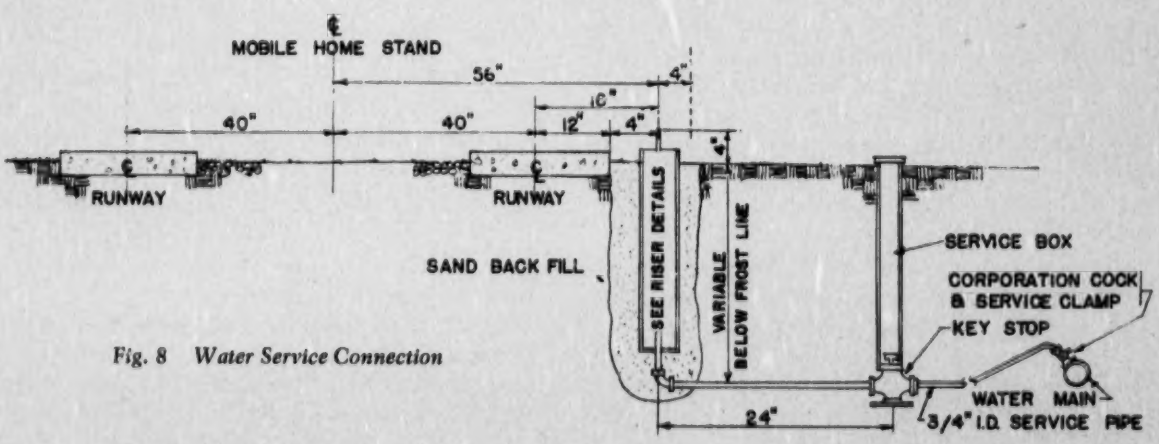


Fig. 8 Water Service Connection

since only 10 to 20 percent of the tank capacity is available as storage. After this reserve has been used, the pressure tank no longer acts as a storage vessel and the rate of supply from the tank then depends on the delivery rate from the source and the adequacy of pumps and piping. Ground level tanks and reservoirs, equipped with pumps, are often used to supplement pressure tanks and to handle sustained maximum demands.

Storage facilities should be constructed of permanent, watertight material and should be covered. Overflow, blowoff, and cleanout pipes should be turned downward and covered with 24 inch mesh screen to prevent the entrance of contaminants. Overflow lines should discharge through an air gap to prevent any back siphonage. Manholes should be fitted with raised, watertight walls, enclosed with a watertight, overlapping, cover, and should be locked, or otherwise fastened, to prevent unauthorized access. Ground level tanks and reservoirs should be located above ground water and flood levels, and in such a location that surface water and underground drainage flow away from the structure.

Pumping Equipment

No pumps, well casings, or suction lines should be located in any pit, room, or space extending below ground level, nor in any room or space above ground which is walled in or otherwise enclosed, unless it has free drainage by gravity to the surface of the ground. A sanitary seal should be provided on wells to seal the annular space between the drop pipe and the casing. Pump room floors should be impervious and should slope from the pump pedestal to the floor drain which should discharge through an acceptable air gap. the floor of pump rooms constructed above ground should be at least 6 inches above the outside ground surface, and the well casing should extend at least 6 inches above the pump room floor or platform slab.

Adequate precautions should be taken to insure the sanitary protection of both wells and pumping equipment as required by State or local codes. Additional information on protection procedures can be obtained from the Public Health Service Publication INDIVIDUAL WATER SUPPLY SYSTEMS (see reference No. 6).

Disinfection

Methods of disinfecting wells vary slightly depending on the type of well that is constructed. Generally, the procedure is to apply a 50 parts per million solution of chlorine to a developed well until a distinct chlorine odor is detectable in water pumped from the well, after which the solution is allowed to remain in the well for 24 hours. After 24 hours, the well should be pumped until the chlorine odor is no longer detectable. The water should be tested for its bacteriological quality after normal pumping operations are established but before being used for consumption. The water from the system should not be used for domestic or culinary purposes until reports on the bacteriological examination indicate that the water is safe for such use.

The water distribution system, including storage tanks and standpipes, should be disinfected in a similar manner. After construction or repairs, the system should be flushed out and disinfected with a 100 parts per million chlorine solution. The entire system should be filled with the chlorine solution, and all outlets should be opened until a strong chlorine odor is detectable in the water. All outlets then should be closed and the disinfecting solution should remain in the system for not less than 24 hours, after which the water in the system should be checked for chlorine residual and the system drained out. The process should be repeated if no chlorine residual is found. The system should be flushed with treated water before being placed into operation. If considered necessary, a bacteriological sample can be taken a few days later and tested to determine whether or not the water delivered by the system is free of contamination.

The water supply system provided for a mobile home park should be inspected and approved by the health authority after construction and disinfection, and before it is placed into use. The recommendations of the State and local health authorities should be followed to assure the development of a safe and satisfactory supply.

Testing of Water Supply

In order to assure a safe and satisfactory water supply, samples of the water should be collected periodically and tested bacteriologically for organisms of the coliform group. If the water supply is obtained from a public system, the local health authority or an authorized agency should be responsible for testing the water. If the water supply is obtained from a private source, the health authority should be contacted for guidance in per-

iodic sampling of the water. A sampling frequency of at least once a month is recommended.

If bacteriological testing indicates continuous chlorination of the water supply is necessary, the chlorination procedures adopted should conform to all applicable regulations or to the requirements established by the health authority. Detailed and accurate records of the chlorination procedure should be maintained.

Drinking Fountains

Drinking fountains may be provided at swimming pools, recreation buildings, and other areas where considered necessary to meet the anticipated needs of the mobile home park. If provided, drinking fountains should be properly located and constructed of impervious material and should have an angle jet with the nozzle above the overflow rim of the bowl. The nozzle should be protected by a nonoxidizing mouth guard. The bowl should be of easily cleanable design, without corners, and the bowl opening should have a strainer. The drain from the fountain should have no direct physical connection with a waste pipe, unless the drain is trapped. Drinking fountains should have a flow pressure of at least 15 pounds per square inch.

SEWAGE DISPOSAL

General

An adequate and safe sewerage system should be provided in all mobile home parks for conveying and disposing of sewage from mobile homes, service buildings and other park facilities. The sewerage system should be designed, constructed and maintained in accordance with all applicable regulations and the requirements of the health authority.

It is advisable to keep a record of the location and grade of sewers, the elevations of all important points such as inverts at manholes, and the exact positions of all wye branches or slants. Records are especially important if sewers are installed on a curved alignment.

Sewage Treatment

If possible, the sewerage system of a mobile home park should be connected to a public sewerage system. If public sewers are not available within a reasonable distance of the mobile home park, adequate treatment facilities must be installed to dispose of the sewage. Where the sewerage system of the mobile home park is not connected to a public sewer, any proposed sewage disposal facilities should be approved by the health authority prior to construction. The effluent from such treatment facilities should not be discharged into any body of water without approval.

The sewage treatment installation should be located where it will not create a health hazard or odor nuisance to the occupants of the mobile home park nor to occupants of adjacent property. The topography of the area will often dictate the location of the treatment facilities since gravity drainage of the sewerage system is preferred. The State or local health authority can advise on the type of sewage treatment facilities which will be best suited to the location, considering the number of mobile homes to be served, soil conditions, topography, and other problems involved in sewage disposal. Such recommendations on the design and construction of the treatment facilities must be followed.

Sewerage Systems

Sewerage systems must have adequate capacity and be economical to construct, operate, and maintain. The design of sewerage and sewage treatment facilities for a mobile home park should be based on the maximum number of mobile home lots to be served and a sewage flow of at least 150 gallons per lot per day. Since the use of garbage grinders and automatic laundry equipment can significantly increase sewage flow, it may be desirable, before designing a sewerage system, to determine how extensive the use of these devices will be.

All sewer lines should be laid in trenches, separated at least 10 feet horizontally from any pressurized drinking water supply line, at a grade which will insure a mean velocity of 2 feet per second when the sewer is flowing full. All joints on the sewer line should be made watertight and every effort should be made to minimize ground water infiltration into the sewerage system. All sewer connections and manholes should be so constructed as to prevent surface water from entering the sanitary sewers. Proper bedding and backfilling should be used on all sewer pipe to minimize maintenance problems and prolong the life of the sewerage system. A backfill of 12 inches of clean earth free from stones, cinderfill, or organic matter should be provided over all sewer lines.

Manholes should be provided at every change in direction or grade, at the upper end of every main sewer line, at every junction of two or more

branch sewers and at intervals of not more than 400 feet. Cleanouts extending to grade may be used instead of manholes on sewer lines less than 8 inches in diameter. They should be provided where a manhole would otherwise be necessary and at intervals of not more than 100 feet. All cleanouts should be at least 4 inches in diameter and should be capped with cleanout plugs. A clearance of at least 18 inches over cleanouts is necessary for the purpose of rodding.

Sewer Service Connections

A sewer service connection should be provided at each mobile home lot. The recommended location of the sewer riser pipe on each lot is illustrated in Figure 7.

The sewer service connection utilizes a riser pipe of at least a 4 inch diameter which terminates at least 4 inches above the ground surface. The tubing or piping connecting the mobile home drain outlet and the sewer riser pipe should be noncollapsible, semirigid, and of 3 inch diameter. A reducer from 4 to 3 inches should connect the bell end of the 4 inch riser pipe with the 3 inch semirigid tubing or piping. All materials used for sewer connections should be corrosion resistant, nonabsorbent and durable, with a smooth surface.

A suggested design for a mobile home sewer service connection is shown in Figure 9. As shown, no subsurface trap is necessary in the sewer riser pipe since the plumbing fixtures in mobile homes are adequately trapped and vented.

Other types of sewer connections, such as those which utilize a screw type connection, are acceptable if they are watertight, airtight, and otherwise equivalent to the recommended connection.

When the sewer connection is not in use, the bell of the riser pipe must be capped with an airtight cap or plug. This is necessary to exclude rodents and other objects and prevent the escape of odors.

Plumbing

All plumbing in the mobile home park should be constructed, installed, and maintained in accordance with applicable State and local regulations and requirements.

Specific attention should be given to the problem of cross connection and back siphonage. Any fixture in a mobile home park which would permit a cross connection or backflow connection to be made should not be connected to the potable water system until the defect has been corrected.

All plumbing should be protected against freezing and sewers should be installed below the recorded frost penetration depth of the area.

Storm Water Drainage

The installation of a storm water drainage system will improve the drainage of any site that

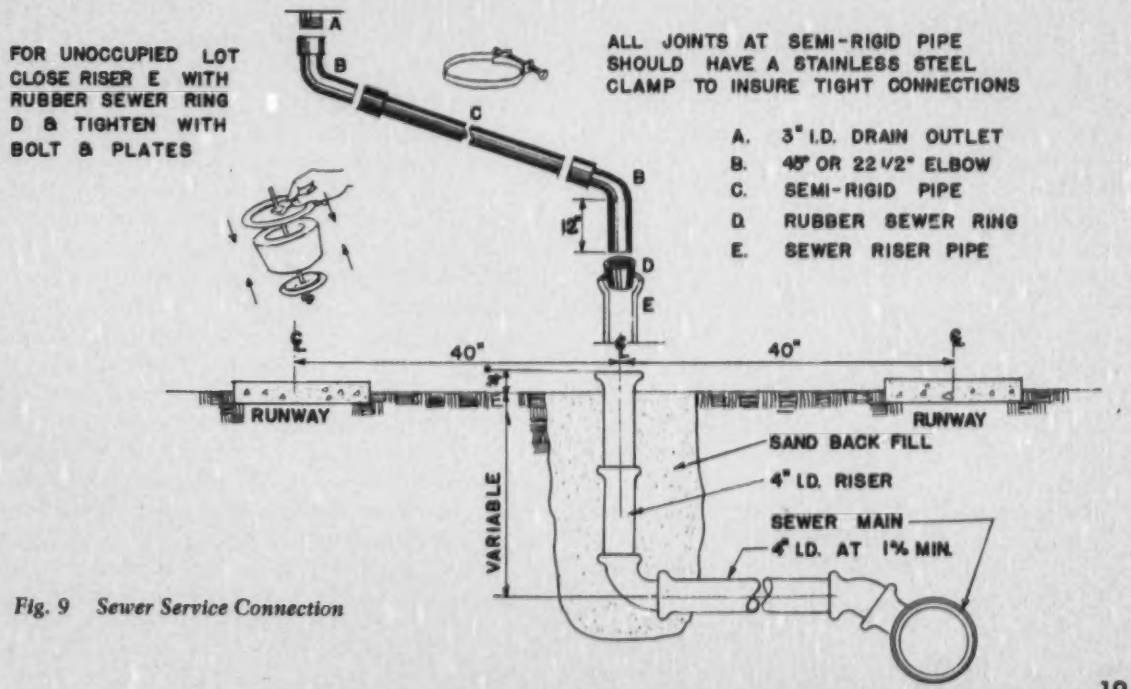


Fig. 9 Sewer Service Connection

does not have good natural drainage. It is recommended that separate systems be provided for storm water and sanitary sewage to more effectively dispose of both types of flow. If a combined system is used, the storm drains that discharge into the combined system should be trapped.

The storm sewer system should be sized and designed according to standard engineering practice. Storm sewers should be laid on sufficient grade to provide a minimum velocity of 2.5 feet per second when flowing full.

REFUSE HANDLING

General

Public health problems are often associated with improper storage, collection, and disposal of refuse. There are significant relationships between the incidence of certain diseases in humans and animals and improper refuse handling. It is also common knowledge that many hazards and nuisances, such as fire, smoke, odors, and unsightliness, are created by poor refuse handling practices. Experience has shown that application of the basic principles of sanitation to refuse handling results in substantial reductions in insects, rodents, and related health problems.

Refuse

Generally, the refuse produced in any mobile home park will be composed of garbage, ashes, and rubbish. Garbage consists of food wastes; ashes are the residue from burned combustible materials; and rubbish includes paper, tin cans, bottles, garden trimmings, and other discards.

Garbage can be effectively disposed of by grinding it in a garbage grinder and then discharging it to a sanitary sewer. If grinding is not used, another method of handling the garbage is to drain and wrap it in several thicknesses of newspaper. This practice prevents fly production, keeps the containers clean, reduces odor production, and prolongs the life of containers. When local regulations restrict the grinding or wrapping of garbage, extra care is necessary in storing. The area around containers should be kept free from waste material and containers should be washed regularly to control odors and fly breeding.

Ashes will normally accumulate infrequently and in small quantities in mobile home parks. The use of outdoor grills and the burning of leaves are the usual sources of ashes. Small quantities of ashes can best be disposed of by placing them in metal cans, strong cardboard boxes, or other suitable containers before placing them in the refuse containers.

Bulky rubbish, such as tree and shrub trimmings, should be tied in bundles which are easy to handle and small enough to load easily in the collection truck.

Containers

All refuse should be stored in durable, rust resistant, nonabsorbent, watertight, and rodent proof containers that are covered with close fitting lids and provided with suitable handles. They should be maintained in a clean condition and kept in good repair. Sufficient capacity should be provided to prevent any container from overflowing between collections. Generally, each mobile home will require from 5 to 10 gallons of refuse storage capacity per day.

Unless local collection regulations or disposal methods require the use of separate containers for garbage and rubbish, they may be stored in the same container. Combined refuse collection is recommended when sanitary landfills are used as the means of final disposal. Where combined refuse or rubbish is collected, containers with a capacity of about 30 gallons are recommended to provide adequate capacity and yet be small enough for easy handling by collectors. If garbage is collected separately, it can be stored in a container of about 10 gallon capacity.

The life of containers can be prolonged and the sanitary condition more easily maintained by lining them with a disposable paper or plastic bag as protection against excessive soiling and rusting. Spraying of suitable insecticides and sanitizing chemicals may be necessary in and around the containers to reduce odors and fly production during warm weather.

Container Storage

Preferably, each mobile home lot should have its own refuse storage facilities; however, the same storage facilities can be used for adjacent lots so long as ample capacity is provided. It is also possible to use bulk containers to serve several mobile homes and thus reduce the required refuse storage area.

The location of refuse containers on the mobile home lot can be varied but it is important that permanent locations be selected and satisfactory racks or stands provided to minimize spillage and container damage and deterioration. When set on stands, containers should have at least 12 inches of clear space beneath them to facilitate cleaning and prevent rodent harborage.

It is advisable that a screen or enclosure be placed around the refuse container storage area

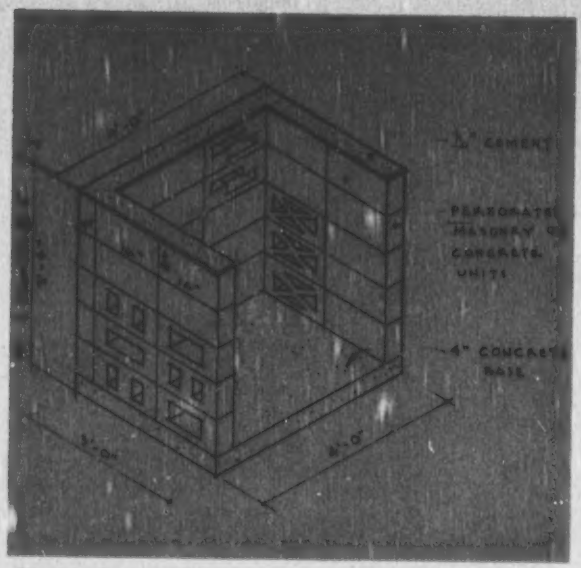


Fig. 10 Suggested Screening for Refuse Collection Stand

to prevent direct viewing of the containers and access to them by dogs or other animals. Concrete or masonary block screens can be constructed that are both decorative and durable. Figure 10 illustrates a suggested method of screening. It is important that the enclosure be easy to clean and easily accessible to the collectors.

Collection

All refuse which contains garbage should be collected at least twice weekly. Frequent collection service requires less provision for storage capacity. Where collection service is provided by municipal or private agencies, their services should be utilized to insure regular removal of the refuse. In areas where refuse collection and disposal services are not available, the owner or operator of the mobile home park must provide this service.

All refuse should be collected and transported in covered containers to prevent littering the mobile home park and surrounding area. Routes of collection vehicles should be planned so as to create the least amount of congestion and traffic hazard. The strength of the roadway surface should also be considered when planning routes as some collection trucks may be heavy enough to damage low strength roads.

Disposal

Where collection service is provided by a collection agency, the owner or operator is not directly concerned with the method of disposal. In areas where municipal or private collection service is not available, the owner or operator should dispose of the refuse by incineration, burial, or transportation to a disposal site approved by the local authority.

There are a variety of small commercial incinerators available which can adequately dispose of the quantities of refuse usually accumulated in mobile home parks. Contractors or manufacturers of such equipment will usually provide recommendations on the type and capacity of incinerator needed.

Incinerators must be properly designed and operated in order to reduce the refuse to an odorless gas and an inorganic ash. A minimum temperature of 1250° F must be maintained in the incinerator to prevent nuisances, such as odors and dense smoke, from occurring. If garbage is to be burned, the incinerator may need to be equipped with an auxiliary fuel burner. Incinerators should be operated only when attended by some person responsible for the operation.

Refuse that is to be buried by the sanitary landfill method should be spread and compacted in layers not exceeding a depth of about 2 feet of compacted material and consecutive layers should not exceed a total depth of about 8 feet before being covered. A layer of at least 6 inches of compacted cover material should be placed on all exposed refuse at least daily and the final cover layer should be clean earth material compacted to a minimum depth of 2 feet.

INSECT AND RODENT CONTROL

General

The control of insects and rodents in mobile home parks is necessary to protect the health and property of the residents. Insects and rodents are capable of transmitting diseases to man and other animals by bites or indirect contact and they are capable of causing property damage, including damage to vegetation, by gnawing or chewing.

Small localized infestations of insects or rodents can often be controlled by the owner or operator of the mobile home park. However, widespread infestations should be handled by a competent pest control operator, especially if large-scale chemical treatment procedures are used.

The best method of controlling insects and rodents in mobile home parks is to use environmental sanitation procedures which eliminate food sources and places of harborage used by these pests. A proper environment will discourage the infestation and breeding of insects and rodents. The use of good environmental sanitation

procedures will, in most instances, provide the most effective control and, over a period of years, it is more economical than repetitive chemical control measures which should be used only if proper control cannot otherwise be maintained.

Proper precautions are always necessary when using pesticides to assure the safety of humans, domestic pets, and desirable wildlife. Many pesticides are potentially very hazardous and should be used only by trained pest control workers. Untrained persons using pesticides should use them only for small-scale treatments and any instructions for use on the labeling of the package should be followed carefully. Whenever large-scale applications of pesticides are to be made in a mobile home park, the health authority should be consulted to be sure proper methods and precautions are being exercised. If any doubt exists as to the safety, dosage, or method of application of any pesticide, the user should seek technical advice from a competent source.

Mosquito Control

Mobile home parks should be kept free of cans, jars, buckets, old tires and other objects which may hold water and provide breeding places for mosquitoes. All depressions in which water may collect should be drained and filled to eliminate potential breeding areas. Any type of vegetation favoring mosquito production should be treated or removed.

For chemical treatment, No. 2 fuel oil, applied at a rate of about 15 to 50 gallons per acre is an effective larvicide for use in low, wet areas and on pools of standing water. In and around buildings, DDT will give good adulticidal action against nonresistant species when applied at a rate of 1 gallon of 5 percent spray per 1,000 square feet. Sprays containing dieldrin, BHC (benzine hexachloride), or malathion can be used against species resistant to DDT.

Fly Control

Attempts at chemical control of flies are seldom effective when not accompanied by proper environmental sanitation procedures. Flies should not be allowed access to organic matter such as garbage since they reproduce rapidly in this material. Garbage should be kept in proper containers provided with tight fitting lids. Garbage containers should be replaced or repaired when so damaged that their lids do not fit tightly enough to prevent the entrance of flies. All containers should be washed frequently and securely fastened on racks or stands to prevent overturning. The area around containers should not become littered with garbage nor saturated with liquid wastes from garbage. Droppings from dogs and other animals should be removed or covered with dirt or other suitable material.

Flies can be chemically controlled by using residual sprays. Pyrethrins (synergized) can be used as an indoor space spray. Emulsions or solutions of DDT (5 percent) dieldrin, or malathion can be used as residual sprays and emulsions of malathion or DDVP as larvicidal treatments.

Rodent Control

The most effective way to prevent or eliminate rodent infestation is to destroy places of harborage and remove food sources. Harborage places can be eliminated by the orderly stacking of such materials as lumber, pipe, or sheet metal at least 12 inches off the ground. Useless scrap material or rubbish should be promptly disposed. Storage, utility, and all other buildings should be rat proofed as much as possible.

In food storage areas, such as might be found in recreation building snack bars or other food service facilities, all food supplies should be stored with at least a 12 inch clear space beneath them. Periodic inspections should be made of food supplies to determine if rodents may have gained access to them.

Rodents can be controlled by trapping, the use of rodenticides, or both. Trapping has an advantage in that when the rodent is caught it can be removed from the premises without the odor problem that sometimes results when a poisoned animal dies in its place of harborage. Trapping is not as effective as poisoning however. Anticogulant poisons such as Warfarin, Pival, Fumarin, Diphacinone, or PMP are effective against rodents when properly use. Single dose poisons such as red squill, arsenic trioxide, and zinc phosphide are also effective but they are more difficult and hazardous to use.

Roach Control

The best method of control of roaches is general cleanliness and tidyness. Food bits and crumbs should not be allowed to accumulate on floors, in cracks or crevices, or in other places accessible to roaches. Rags, books, or other objects should not be stored in dark, damp places or stored in a disorderly manner.

Solutions or emulsions of chlordane, dieldrin,

or malathion can be sprayed into cracks and crevices in walls, baseboards, furniture, fixtures, cabinets, along water pipes, and other places where roaches hide or travel. Finely powdered silica gel, chlordane dust, or malathion dust may be blown onto electrical wires or into fuse boxes and other places where sprays might cause damage. To obtain a quick kill in heavy infestations or to drive the roaches from protected recesses, aerosol formulations of pyrethrum, alone or in combination with a residual treatment, are of value.

Flea, Tick, and Chigger Control

Grass should be cut frequently and weeds should be eliminated in order to reduce food sources and places of harborage for insects.

Flea control can be obtained by using a 5 to 10 percent DDT dust to treat the premises, particularly in places frequented by infected animals. If there is a definite resistance to DDT, a malathion dust may be used. Extra care should be taken when using insecticides around young animals to be sure they are not overexposed.

Area control of ticks can be obtained by the application of DDT, chlordane, dieldrin, or toxaphene at rates of 1 to 2 pounds of toxicant per acre, or BHC at a rate of 0.5 pound of the gamma isomer per acre.

Widespread infestations of chiggers (red bugs) can be controlled with spray or dust treatments of toxaphene or chlordane (1 to 2 pounds per acre), lindane, (0.25 to 0.50 pounds per acre), or dieldrin (0.6 to 1.0 pounds per acre).

ELECTRICAL DISTRIBUTION

General

All electrical wiring, equipment, and appurtenances should be installed and maintained in accordance with applicable codes and regulations. Where such codes or regulations do not exist, the provisions of the NATIONAL ELECTRICAL CODE (see reference No. 7) can be applied.

Distribution Lines

Preferably, distribution lines should be installed in underground conduits. Underground lines provide a much neater appearance and allow for more efficient use of available land than do overhead lines. Underground lines should be placed at least 18 inches below the ground surface and at least 1 foot radial distance from water, sewer, gas, or communication lines.

If overhead power lines are installed, they should be at least 18 feet above streets or roadways. A minimum horizontal clearance of at least 3 feet is necessary between overhead lines and any structure.

Individual Electrical Connections

A properly grounded weather proof receptacle should be provided for each mobile home lot capable of supplying at least 50 ampere current at 120/240 volts. However, those mobile homes equipped with air conditioners, automatic washers and dryers, or other power consuming appliances may need 100 ampere current at 120/240 volts. The attachment plug, connectors, and mating receptacles should be of a 3 pole, 4 wire grounding type complying with AMERICAN STANDARD OUTLET RECEPTACLES, ATTACHMENT PLUG CAPS, AND APPLIANCE PLUGS, C-73-1 (see reference No. 8).

Circuit breakers or other overcurrent protective devices and disconnecting switches should be provided in a convenient location for each mobile home to be served. The outlet receptacles should be within 25 feet of the overcurrent protective devices in the mobile home.

Grounding

All exposed noncurrent carrying metal parts of mobile homes and equipment should be grounded by means of an approved grounding conductor run with branch circuit conductors or other approved method of grounded metallic wiring. The neutral conductor should not be used as an equipment ground for mobile homes or other equipment.

Exterior Lighting

Adequate lighting should be provided for all streets, walkways, buildings, and other facilities subject to night time use. Illumination should be provided in accordance with local requirements; where none exist, the recommendations in the STANDARD LIGHTING GUIDE (see reference No. 9) of the Illuminating Engineering Society can be applied.

Because of the safety hazards associated with high density developments such as mobile home parks, it is recommended that an average illumination level of at least 0.6 footcandle and a minimum illumination level of 0.1 footcandle be maintained on all streets. Potentially hazardous locations, such as street intersections and steps or stepped ramps should be individually illuminated, with a minimum level of 0.3 footcandle.

FUEL SUPPLY AND STORAGE

All handling or storage of natural gas, liquified petroleum gas (LPG), fuel oil, or other flammable liquids or gases should conform to all applicable regulations; where none exist, the standards of the National Board of Fire Underwriters and National Fire Protection Association (see references Nos. 9 and 10) can be applied.

Central storage and underground distribution of fuel is recommended to decrease the frequency of fuel deliveries, eliminate the unsightliness of individual fuel storage facilities, and provide more free usable space on each lot. All piping in any fuel distribution system should be composed of suitable material such as steel, wrought iron, threaded copper, or brass and it should be permanently installed and fastened in place. All fuel service lines to mobile home lots should be provided with a shutoff valve upstream from the service outlet. The service outlet should be capped when not in use.

If LPG or fuel oil containers are installed on mobile home lots, they should be securely fastened in place to prevent overturning. No LPG or fuel oil container should be placed inside or beneath any mobile home, storage cabinet, carport, or any other structure unless such arrangement is approved by the appropriate authority. Containers of fuel oil should be at least 5 feet from any mobile home exit.

FIRE PROTECTION AND SAFETY

General

Adequate fire protection should be provided in accordance with applicable State and local requirements; where none exist, current standards published by the National Fire Protection Association (see references Nos. 9 and 10) can be applied.

If a water supply of sufficient quantity is available, fire hydrants should be installed within 500 feet of all mobile homes, service buildings, or other structures. The hydrants or other water supply facilities should be so arranged as to permit the operation of a minimum of two 1½ inch hose streams on any fire that might occur. The water supply system serving the hydrants should be able to provide a delivery of at least 75 gallons per minute at each of two nozzles, held 4 feet above the ground, at a flowing pressure of at least 30 pounds per square inch at the highest elevation in the area served.

If hydrants are not installed, then equivalent protection, as determined by the local fire protection authority or National Fire Protection Association standards, should be provided.

Fires should be allowed only in stoves, incinerators, and other equipment specifically designed for such purposes; open fires should never be permitted. Mobile home parks should be kept free of dry brush, weeds, and combustible refuse.

At least one portable fire appliance, such as Class A extinguishers (soda-acid, pump tank, antifreeze), should be installed in service buildings and other buildings to fight fires in ordinary combustible materials. Where there is a danger of flammable liquid and electrical fires, Class B and Class C extinguishers should also be provided.

Heating Units

Fire and safety hazards have been associated with mobile homes containing heating equipment which is inadequately vented, often due to improper construction or installation. Such equipment presents not only the danger of fire but also the danger of asphyxiation from accumulation of gas fumes.

The owner or operator of the mobile home park should not permit residents to use heating or cooking equipment or systems that appear to be hazardous, such as the use of portable fuel burning equipment in unvented, confined enclosures. To assure adequate safety, all equipment and systems should be constructed in accordance with AMERICAN STANDARD INSTALLATIONS OF PLUMBING, HEATING, AND ELECTRICAL SYSTEMS IN MOBILE HOMES, A 119.1-1963 (see reference No. 1).

MISCELLANEOUS REQUIREMENTS

Supervision

Every mobile home park should be provided with adequate supervision to assure that the park and its facilities and equipment are maintained in good repair and operated in a clean and sanitary condition at all times. The owner and/or operator of the mobile home park should be held responsible for the violation of any State or local requirement pertaining to the operation or sanitary condition of the park.

Registration

The operator of a park should maintain a register containing the names of all mobile home occupants permitted to use the park. The register should be available to any authorized person in-

specting the mobile home park and should be preserved for a period designated by the health authority.

Communicable Disease Control

The owner or operator of a mobile home park, must notify the health authority immediately of any known or suspected case of a communicable disease. In the case of diseases that are diagnosed as quarantinable, the mobile home and its occupants should not be allowed to depart from the park and clothing or other articles that have been exposed to the infection should not be removed, without the approval of the health authority.

Pets

No dogs, cats, or other domestic animals should be permitted unrestricted freedom in a parking area. Any kennels, pens, or other facilities provided for such pets should be maintained in a sanitary condition at all times.

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—APPENDIX—

RECOMMENDED ORDINANCE GOVERNING MOBILE HOME PARKS

(TITLE: The following is a suggested title; the actual title should conform to local requirements.)

AN ORDINANCE enforcing MINIMUM STANDARDS for mobile home parks; establishing requirements for the design, construction, alteration, extension and maintenance of mobile home parks and related utilities and facilities; authorizing the issuance of permits for construction, alteration and extension of mobile home parks; authorizing the licensing of operators of mobile home parks; authorizing the inspection of mobile home parks; and fixing penalties for violations.

Be it, therefore, ordained by the (name of municipality) as follows:

SECTION 1: DEFINITIONS

As used in this ordinance:

a. HEALTH AUTHORITY means the legally designated health authority or its authorized representative of (name of municipality).

b. LICENSE means a written license issued by the health authority allowing a person to operate and maintain a mobile home park under the provisions of this Ordinance and regulations issued hereunder.

c. MOBILE HOME means a transportable, single-family dwelling unit suitable for year-round occupancy and containing the same water supply, waste disposal and electrical conveniences as immobile housing.

d. MOBILE HOME LOT means a parcel of land for the placement of a single mobile home and the exclusive use of its occupants.

e. MOBILE HOME PARK means a parcel of land under single ownership which has been planned and improved for the placement of mobile homes for non-transient use.

f. MOBILE HOME STAND means that part of an individual lot which has been reserved for the placement of the mobile home, appurtenant structures or additions.

g. PERMIT means a written permit issued by the health authority permitting the construction, alteration and extension of a mobile home park under the provisions of this Ordinance and regulations issued hereunder.

h. PERSON means any individual, firm, trust, partnership, public or private association or corporation.

i. SERVICE BUILDING means a structure housing toilet, lavatory and such other facilities as may be required by this Ordinance.

j. SEWER CONNECTION means the connection consisting of all pipes, fittings and appurtenances from the drain outlet of the mobile home to the inlet of the corresponding sewer riser pipe of the sewerage system serving the mobile home park.

k. SEWER RISER PIPE means that portion of the sewer lateral which extends vertically to the ground elevation and terminates at each mobile home lot.

l. WATER CONNECTION means the connection consisting of all pipes, fittings and appurtenances from the water riser pipe to the water inlet pipe of the distribution system within the mobile home.

m. WATER RISER PIPE means that portion of the water supply system serving the mobile home park which extends vertically to the ground elevation and terminates at a designated point at each mobile home lot.

SECTION 2: PERMITS

2.1

It shall be unlawful for any person to construct, alter or extend any mobile home park within the limits of (name of municipality) unless he holds a valid permit issued by the health authority in the name of such person for the specific construction, alteration or extension proposed.

2.2

All applications for permits shall be made to the health authority and shall contain the following:

(a) Name and address of applicant.

(b) Interest of the applicant in the mobile home park.

(c) Location and legal description of the mobile home park

(d) Complete engineering plans and specifications of the proposed park showing:

1. The area and dimensions of the tract of land;
2. The number, location, and size of all mobile home lots;
3. The location and width of roadways and walkways;
4. The location of service buildings and any other proposed structures;
5. The location of water and sewer lines and riser pipes;
6. Plans and specifications of the water supply and refuse and sewage disposal facilities;
7. Plans and specifications of all buildings constructed or to be constructed within the mobile home park; and
8. The location and details of lighting and electrical systems.

2.3

All applications shall be accompanied by the deposit of a fee of .....dollars.

2.4

When, upon review of the application, the health authority is satisfied that the proposed plan meets the requirements of this Ordinance and regulations issued hereunder, a permit shall be issued.

2.5

Any person whose application for a permit under this Ordinance has been denied may request and shall be granted a hearing on the matter before the health authority under the procedure provided by Section 5 of this Ordinance.

SECTION 3: LICENSES

3.1

It shall be unlawful for any person to operate any mobile home park within the limits of (name of municipality) unless he holds a valid license issued annually by the health authority in the name of such person for the specific mobile home park. All applications for licenses shall be made to the health authority, who shall issue a license upon compliance by the applicant with provisions of this Ordinance and regulations issued hereunder and of other applicable legal requirements.

3.2

Every person holding a license shall give notice in writing to the health authority within twenty-four hours after having sold, transferred, given away, or otherwise disposed of interest in or control of any mobile home park. Such notice shall include the name and address of the person succeeding to the ownership or control of such mobile home park. Upon application in writing for transfer of the license and deposit of a fee of .....dollars, the license shall be transferred if the mobile home park is in compliance with all applicable provisions of this Ordinance and regulations issued hereunder.

3.3

(a) Application for original licenses shall be in writing, signed by the applicant, accompanied by an affidavit of the applicant as to the truth of the application and by the deposit of a fee of .....dollars, and shall contain: the name and address of the applicant; the location and legal description of the mobile home park; and a site plan of the mobile home park showing all mobile home lots, structures, roads, walkways, and other service facilities.

(b) Applications for renewals of licenses shall be made in writing by the holders of the licenses, shall be accompanied by the deposit of a fee of .....dollars and shall contain any change in the information submitted since the original license was issued or the latest renewal granted.

3.4

Any person whose application for a license under this Ordinance has been denied may request and shall be granted a hearing on the matter before the health authority under the procedure provided by Section 5 of this Ordinance.

3.5

Whenever, upon inspection of any mobile home park, the health authority finds that conditions or practices exist which are in violation of any provision of this Ordinance or regulations issued hereunder, the health authority shall give notice in writing in accordance with Section 5.1 to the person to whom the license was issued that unless such conditions or practices are corrected within a reasonable period of time specified in the notice by the health authority, the license shall be suspended. At the end of such period, the health authority shall reinspect such mobile home park and, if such conditions or practices have not been corrected, he shall suspend the license and give notice in writing of such suspension to the person to whom the license is issued. Upon receipt of notice of such suspension, such person shall cease operation of such mobile home park except as provided in Section 5.2.

3.6

Any person whose license has been suspended, or who has received notice from the health authority that his license will be suspended unless certain conditions or practices at the mobile home park are corrected, may request and shall be granted a hearing on the matter before the health authority, under the procedure provided by Section 5 of this Ordinance; provided that when no petition for such hearing shall have been filed within ten days following the day on which notice of suspension was served, such license shall be deemed to have been automatically revoked at the expiration of such ten-day period.

3.7

A temporary license, upon written request therefor, shall be issued by the health authority, for every mobile home park in existence upon the effective date of this Ordinance, permitting the mobile home park to be operated during the period ending 180 days after the effective date of this Ordinance in accordance with such conditions as the health authority may require.

3.8

The term of the temporary license shall be extended, upon written request, for not to exceed one additional period of 180 days, if (1) the licensee shall have filed application for a license in conformity with Section 3.3 of this Ordinance within 90 days after the effective date of this Ordinance; (2) the plans and specifications accompanying the application for license comply with all provisions of this Ordinance and all other applicable ordinances and statutes; (3) the licensee shall have diligently endeavored to make the existing mobile home park conform fully to the plans and specifications submitted with application; and (4) failure to make the existing mobile home park conform fully to such plans and specifications shall have been due to causes beyond the control of the licensee.

SECTION 4: INSPECTION OF MOBILE HOME PARKS

4.1

The health authority is hereby authorized and directed to make such inspections as are necessary to determine satisfactory compliance with this Ordinance and regulations issued hereunder.

4.2

The health authority shall have the power to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the enforcement of this Ordinance and regulations issued hereunder.

4.3

The health authority shall have the power to inspect the register containing a record of all residents of the mobile home park.

4.4

It shall be the duty of the owners or occupants of mobile home parks, and mobile homes contained therein, or of the person in charge thereof, to give the health authority free access to such premises at reasonable times for the purpose of inspection.

4.5

It shall be the duty of every occupant of a mobile home park to give the owner thereof or his agent or employee access to any part of such mobile home park or its premises at reasonable times for the purpose of making such repairs or alterations as are necessary to effect compliance with this Ordinance and regulations issued hereunder, or with any lawful order issued pursuant to the provisions of this Ordinance.

SECTION 5: NOTICES, HEARINGS AND ORDERS

5.1

Whenever the health authority determines that there are reasonable grounds to believe that there has been a violation of any provision of this Ordinance, or regulations issued hereunder, the health authority shall give notice of such alleged violation to the person to whom the permit or license was issued, as hereinafter provided. Such notice shall (a) be in writing; (b) include a statement of the reasons for its issuance; (c) allow a reasonable time for the performance of any act it requires; (d) be served upon the owner or his agent as the case may require: Provided: That such notice or order shall be deemed to have been properly served upon such owner or agent when a copy thereof has been sent by registered mail to his last known address, or when he has been served with such notice by any method authorized or required by the laws of this state; (e) contain an outline of remedial action which, if taken, will effect compliance with the provisions of this Ordinance and regulations issued hereunder.

5.2

Any person affected by any notice which has been issued in connection with the enforcement of any provision of this Ordinance, or regulation issued hereuder, may request and shall be granted a hearing on the matter before the health authority: Provided: That such person shall file in the office of the health authority a written petition requesting such hearing and setting forth a brief statement of the grounds therefor within ten days after the day the notice was served. The filing of the request for a hearing shall operate as a stay of the notice and of the suspension except in the case of an order issued under Section 5.5. Upon receipt of such petition, the health authority shall set a time and place for such hearing and shall give the petitioner written notice thereof. At such hearing the petitioner shall be given an opportunity to be heard and to show why such notice should be modified or withdrawn. The hearing shall be commenced not later than ten days after the day on which the petition was filed: Provided: That upon application of the petitioner the health authority may postpone the date of the hearing for a reasonable time beyond such ten-day period when in his judgment the petitioner has submitted good and sufficient reasons for such postponement.

5.3

After such hearing the health authority shall make findings as to compliance with the provisions of this Ordinance and regulations issued hereunder and shall issue an order in writing sustaining, modifying or withdrawing the notice which shall be served as provided in Section 5.1(d). Upon failure to comply with any order sustaining or modifying a notice, the license of the mobile home park affected by the order shall be revoked.

5.4

The proceedings at such a hearing, including the findings and decision of the health authority, and together with a copy of every notice and order related thereto shall be entered as a matter of public record in the office of the health authority but the transcript of the proceedings need not be transcribed unless judicial review of the decision is sought as provided by this Section. Any person aggrieved by the decision of the health authority may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this State.

5.5

Whenever the health authority finds that an emergency exists which requires immediate action to protect the public health, he may without notice or hearing issue an order reciting the existence of such an emergency and requiring that such action be taken as he may deem necessary to meet the emergency including the suspension of the permit or license. Notwithstanding any other provisions of this Ordinance, such order shall be effective immediately. Any person to whom such an order is directed shall comply therewith immediately, but upon petition to the health authority shall be afforded a hearing as soon as possible. The provisions of Section 5.3 and 5.4 shall be applicable to such hearing and the order issued thereafter.

SECTION 6: ADOPTION OF REGULATIONS BY THE HEALTH AUTHORITY

6.1

The health authority is hereby authorized to make and, after public hearing, to adopt such written regulations as may be necessary for the proper enforcement of the provisions of this Ordinance. Such regulations shall have the same force and effect as the provision of this Ordinance, and the penalty for violation of the provisions thereof shall be the same as the penalty for violation of the provisions of this Ordinance, as hereinafter provided.

SECTION 7: ENVIRONMENTAL, OPEN SPACE AND ACCESS REQUIREMENTS

7.1

General Requirements

Condition of soil, ground water level, drainage and topography shall not create hazards to the prop-

etry or the health or safety of the occupants. The site shall not be exposed to objectionable smoke, noise, odors or other adverse influences, and no portion subject to unpredictable and/or sudden flooding, subsidence or erosion shall be used for any purpose which would expose persons or property to hazards.

7.2

Soil and Ground Cover Requirements

Exposed ground surfaces in all parts of every mobile home park shall be paved, or covered with stone screenings, or other solid material, or protected with a vegetative growth that is capable of preventing soil erosion and of eliminating objectionable dust.

7.3

Site Drainage Requirements

The ground surface in all parts of every mobile home shall be graded and equipped to drain all surface water in a safe, efficient manner.

7.4

Park Areas for Nonresident Uses

(a) No part of any park shall be used for nonresidential purposes, except such uses that are required for the direct servicing and well being of park residents and for the management and maintenance of the park.

(b) Nothing contained in this Section shall be deemed as prohibiting the sale of a mobile home located on a mobile home stand and connected to the pertinent utilities.

7.5

Required Separation Between Mobile Homes

(a) Mobile homes shall be separated from each other and from other buildings and structures by at least 15 feet; provided that mobile homes placed end-to-end may have a clearance of 10 feet where opposing rear walls are staggered.

(b) An accessory structure which has a horizontal area exceeding 25 square feet, is attached to a mobile home or located within 10 feet of its window, and has an opaque top or roof that is higher than the nearest window shall, for purposes of all separation requirements, be considered to be part of the mobile home.

7.6

Required Recreation Areas

(a) In all parks accommodating or designed to accommodate 25 or more mobile homes, there shall be one or more recreation areas which shall be easily accessible to all park residents.

(b) The size of such recreation areas shall be based upon a minimum of 100 square feet for each lot. No outdoor recreation area shall contain less than 2,500 square feet.

(c) Recreation areas shall be so located as to be free of traffic hazards and should, where the topography permits, be centrally located.

7.7

Required Setbacks, Buffer Strips and Screening

(a) All mobile homes shall be located at least 25 feet from any park property boundary line abutting upon a public street or highway and at least 15 feet from other park property boundary lines.

(b) There shall be a minimum distance of 10 feet between an individual mobile home and adjoining pavement of a park street, or common parking area or other common areas.

(c) All mobile home parks located adjacent to industrial or commercial land uses shall be provided with screening such as fences or natural growth along the property boundary line separating the park and such adjacent nonresidential uses.

7.8

Park Street System

(a) GENERAL REQUIREMENTS: All mobile home parks shall be provided with safe and convenient vehicular access from abutting public streets or roads to each mobile home lot. Alingment and gradient shall be properly adapted to topography.

(b) ACCESS: Access to mobile home parks shall be designed to minimize congestion and hazards at the entrance or exit and allow free movement of traffic on adjacent streets. The entrance road connecting the park streets with a public street or road shall have a minimum road pavement width of 34 feet where parking is permitted on both sides, or a minimum road pavement width of 27 feet where parking is limited to one side. Where the primary entrance road is more than 100 feet long and does not provide access to abutting mobile home lots within such distance, the minimum road pavement width may be 24 feet, provided parking is prohibited at both sides.

(c) INTERNAL STREETS: Surfaced roadways shall be of adequate width to accommodate anticipated traffic, and in any case shall meet the following minimum requirements:

1. All streets, except minor streets ....24 feet
2. Minor streets, no parking .....18 feet
   (Acceptable only if less than 500 feet long and serving less than 25 mobile homes or of any length if one-way and providing access to abutting mobile home lots on one side only.)
3. Dead end streets shall be limited in length to .....1,000 feet and shall be provided at the closed end with a turn-around having an outside roadway diameter of at least 60 feet.

(d) REQUIRED ILLUMINATION OF PARK STREET SYSTEMS: All parks shall be furnished with lighting units so spaced and equipped with luminaires placed at such mounting heights as will provide the following average maintained levels of illumination for the safe movement of pedestrians and vehicles at night:

1. All parts of the park street systems: 0.6 footcandle, with a minimum of 0.1 footcandle.
2. Potentially hazardous locations, such as major street intersections and steps or stepped ramps: individually illuminated, with a minimum of 0.3 footcandle.

(e) STREET CONSTRUCTION AND DESIGN STANDARDS:

1. PAVEMENT: All streets shall be provided with a smooth, hard and dense surface which shall

be durable and well drained under normal use and weather conditions. Pavement edges shall be protected to prevent raveling of the wearing surface and shifting of the pavement base. Street surfaces shall be maintained free of cracks, holes and other hazards.

2. GRADES: Grades of all streets shall be sufficient to insure adequate surface drainage, but shall be not more than eight percent. Short runs with a maximum grade of 12 percent may be permitted, provided traffic safety is assured by appropriate paving, adequate leveling areas and avoidance of lateral curves.
3. INTERSECTIONS: Within 100 feet of an intersection, streets shall be at approximately right angles. A distance of at least 150 feet shall be maintained between center lines of offset intersecting streets. Intersections of more than two streets at one point shall be avoided.

7.9

Required Off-Street Parking Areas

(a) Off-street parking areas shall be provided in all mobile home parks for the use of park occupants and guests. Such areas shall be furnished at the rate of at least 1.25 car spaces for each mobile home lot.

(b) Required car parking spaces shall be so located as to provide convenient access to the mobile home, but shall not exceed a distance of 200 feet from the mobile home that it is intended to serve.

7.10

Walks

(a) GENERAL REQUIREMENTS: All parks shall be provided with safe, convenient, all season pedestrian access of adequate width for intended use, durable and convenient to maintain, between individual mobile homes, the park streets and all community facilities provided for park residents. Sudden changes in alignment and gradient shall be avoided.

(b) COMMON WALK SYSTEM: A common walk system shall be provided and maintained between locations where pedestrian traffic is concentrated. Such common walks shall have a minimum width of three and one-half feet.

(c) INDIVIDUAL WALKS: All mobile home stands shall be connected to common walks, to paved streets, or to paved driveways or parking spaces connecting to a paved street. Such individual walks shall have a minimum width of two feet.

7.11

Mobile Home Stands

The area of the mobile home stand shall be improved to provide an adequate foundation for the placement and tie-down of the mobile home, thereby securing the superstructure against uplift, sliding, rotation and overturning.

(a) The mobile home stand shall not heave, shift or settle unevenly under the weight of the mobile home due to frost action, inadequate drainage, vibration or other forces acting on the superstructure.

(b) The mobile home stand shall be provided with anchors and tie-downs such as cast-in-place concrete "dead men", eyelets imbedded in concrete foundations or runways, screw augers, arrowhead anchors, or other devices securing the stability of the mobile home.

(c) Anchors and tie-downs shall be placed at least at each corner of the mobile home stand and each shall be able to sustain a minimum tensile strength of 2,800 pounds.

SECTION 8: WATER SUPPLY

8.1

General Requirements

An accessible, adequate, safe, and potable supply of water shall be provided in each mobile home park. Where a public supply of water of satisfactory quantity, quality, and pressure is available, connection shall be made thereto and its supply used exclusively. When a satisfactory public water supply is not available, a private water supply system may be developed and used as approved by the health authority.

8.2

Source of Supply

(a) The water supply shall be capable of supplying a minimum of 150 gallons per day per mobile home.

(b) Every well or suction line of the water supply system shall be located and constructed in such a manner that neither underground nor surface contamination will reach the water supply from any source. The following minimum distances between wells and various sources of contamination shall be required.

Contamination Sources	Well or Suction Line (Distance in Feet)
Building Sewer	50
Septic Tank	50
Disposal Field	100
Seepage Pit	100
Dry Well	50
Cesspool	150

(c) No well-casings, pumping machinery or suction pipes shall be placed in any pit, room or space extending below ground level nor in any room or space above ground which is walled in or otherwise enclosed, unless such rooms, whether above or below ground, have free drainage by gravity to the surface of the ground.

(d) The treatment of a private water supply shall be in accordance with applicable laws and regulations.

8.3

Water Storage Facilities

All water storage reservoirs shall be covered, watertight and constructed of impervious material. Overflows and vents of such reservoirs shall be effectively screened. Manholes shall be constructed with overlapping covers, so as to prevent the en-

trance of contaminated material. Reservoir overflow pipes shall discharge through an acceptable air gap.

8.4

Water Distribution System

(a) The water supply system of the mobile home park shall be connected by pipes to all mobile homes, buildings, and other facilities requiring water.

(b) All water piping, fixtures and other equipment shall be constructed and maintained in accordance with state and local regulations and requirements and shall be of a type and in locations approved by the health authority.

(c) The water piping system shall not be connected with non-potable or questionable water supplies and shall be protected against the hazards of backflow or back siphonage.

(d) The system shall be so designed and maintained as to provide a pressure of not less than 20 pounds per square inch, under normal operating conditions at service buildings and other locations requiring potable water supply.

8.5

Individual Water-Riser Pipes and Connections

(a) Individual water riser pipes shall be located within the confined area of the mobile home stand at a point where the water connection will approximate a vertical position.

(b) Water riser pipes shall extend at least four inches above ground elevation. The pipe shall be at least three-quarter inch. The water outlet shall be capped when a mobile home does not occupy the lot.

(c) Adequate provisions shall be made to prevent freezing of service lines, valves and riser pipes and to protect risers from heaving and thawing actions of ground during freezing weather. Surface drainage shall be diverted from the location of the riser pipe.

(d) A shutoff valve below the frost line shall be provided near the water riser pipe on each mobile home lot.

(e) Underground stop and waste valves shall not be installed on any water service.

SECTION 9: SEWAGE DISPOSAL

9.1

General Requirements

An adequate and safe sewerage system shall be provided in all mobile home parks for conveying and disposing of all sewage. Such system shall be designed, constructed and maintained in accordance with state and local laws.

9.2

Sewer Lines

All sewer lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movements and shall be separated from the park water supply system at a safe distance. Sewers shall be at a grade which will insure a velocity of two feet per second when flowing full. All sewer lines shall be constructed of materials approved by the health authority, shall be adequately vented, and shall have watertight joints.

9.3

Individual Sewer Connections

(a) Each mobile home stand shall be provided with at least a four inch diameter sewer riser pipe. The sewer riser pipe shall be so located on each stand that the sewer connection to the mobile home drain outlet will approximate a vertical position.

(b) The sewer connection (see definition) shall have a nominal inside diameter of at least three inches, and the slope of any portion thereof shall be at least one-fourth inch per foot. The sewer connection shall consist of one pipe line only without any branch fittings. All joints shall be watertight.

(c) All materials used for sewer connections shall be semirigid, corrosive resistant, nonabsorbent and durable. The inner surface shall be smooth.

(d) Provision shall be made for plugging the sewer riser pipe when a mobile home does not occupy the lot. Surface drainage shall be diverted away from the riser. The rim of the riser pipe shall extend at least four inches above ground elevation.

9.4

Sewage Treatment and/or Discharge

Where the sewer lines of the mobile home park are not connected to a public sewer, all proposed sewage disposal facilities shall be approved by the health authority prior to construction. Effluents from sewage treatment facilities shall not be discharged into any waters of the State except with prior approval of the health authority.

SECTION 10: ELECTRICAL DISTRIBUTION SYSTEM

10.1

General Requirements

Every park shall contain an electrical wiring system consisting of wiring, fixtures, equipment and appurtenances which shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

10.2

Power Distribution Lines

(a) Main power lines not located underground shall be suspended at least 18 feet above the ground. There shall be a minimum horizontal clearance of three feet between overhead wiring and any mobile home, service building or other structure.

(b) All direct burial conductors or cable shall be buried at least 18 inches below the ground surface and shall be insulated and specially designed for the purpose. Such conductors shall be located not less than one foot radial distance from water, sewer, gas or communication lines.

10.3

Individual Electrical Connections

(a) Each mobile home lot shall be provided with an approved disconnecting device and overcurrent protective equipment. The minimum service per outlet shall be 120/240 volts AC, 50 amperes.

(b) Outlet receptacles at each mobile home stand shall be located not more than 25 feet from the

overcurrent protective devices in the mobile home and a three-pole, four-wire grounding type shall be used. Receptacles shall be of weatherproof construction and configurations shall be in accordance with American Standard Outlet Receptacle C-73.1.

(c) The mobile home shall be connected to the outlet receptacle by an approved type of flexible cable with connectors and a male attachment plug.

(d) Where the calculated load of the mobile home is more than 50 amperes either a second outlet receptacle shall be installed or electrical service shall be provided by means of permanently installed conductors.

10.4

Required Grounding

All exposed noncurrent carrying metal parts of mobile homes and all other equipment shall be grounded by means of an approved grounding conductor with branch circuit conductors or other approved method of grounded metallic wiring. The neutral conductor shall not be used as an equipment ground for mobile homes or other equipment.

SECTION 11: SERVICE BUILDING AND OTHER COMMUNITY SERVICE FACILITIES

11.1

General

The requirements of this Section shall apply to service buildings, recreation buildings and other community service facilities such as:

(a) Management offices, repair shops and storage areas;

(b) Sanitary facilities;

(c) Laundry facillities;

(d) Indoor recreation areas;

(e) Commercial uses supplying essential goods or services for the exclusive use of park occupants.

11.2

Required Community Sanitary Facilities

Every park shall be provided with the following emergency sanitary facilities;

For each 100 mobile home lots, or fractional part thereof, there shall be one flush toilet and one lavatory for each sex.

The building containing such emergnecy sanitary facilities shall be accessible to all mobile homes.

11.3

Structural Requirements for Buildings

(a) All portions of the structure shall be properly protected from damage by ordinary uses and by decay, corrosion, termites and other destructive elements. Exterior portions shall of of such materials and be so constructed and protected as to prevent entrance or penetration of moisture and weather.

(b) All rooms containing sanitary or laundry facilities shall:

1. Have sound resistant walls extending to the ceiling between male and female sanitary facilities. Walls and partitions around showers, bathtubs, lavatories and other plumbing ing fixtures shall be constructed of dense, nonabsorbent, waterproof material or covered with moisture resistant material.
2. Have at least one window or skylight facing directly to the outdoors. The minimum aggregate gross area of windows for each required room shall be not less than 10 percent of the floor area served by them.
3. Have at least one window which can be easily opened, or a mechanical device which will adequately ventilate the room.

(c) Toilets shall be located in separate compartments equipped with self-closing doors. Shower stalls shall be of the individual type. The rooms shall be screened to prevent direct view of the interior when the exterior doors are open.

(d) Illumination levels shall be maintained as follows: (1) general seeing tasks—five footcandles; (2) laundry room work area—40 footcandles; (3) toilet room, in front of mirrors—40 footcandles.

(e) Hot and cold water shall be furnished to every lavatory, sink, bathtub, shower and laundry fixture, and cold water shall be furnished to every water closet and urinal.

11.4

Barbecue Pits, Fireplaces, Stoves and Incinerators

Cooking shelters, barbecue pits, fireplaces, woodburning stoves and incinerators shall be so located, constructed, maintained and used as to minimize fire hazards and smoke nuisance both on the property on which used and on neighboring property. No open fire shall be permitted except in facilities provided. No open fire shall be left unattended. No fuel shall be used and no material burned which emits dense smoke or objectionable odors.

SECTION 12: REFUSE HANDLING

12.1

The storage, collection and disposal of refuse in the mobile home park shall be so conducted as to create no health hazards, rodent harborage, insect breeding areas, accident or fire hazards or air pollution.

12.2

All refuse shall be stored in flytight, watertight, rodentproof containers, which shall be located not more than 150 feet from any mobile home lot. Containers shall be provided in sufficient number and capacity to properly store all refuse.

12.3

Refuse collection stands shall be provided for all refuse containers. Such container stands shall be so designed as to prevent containers from being tipped, to minimize spillage and container deterioration and to facilitate cleaning around them.

12.4

All refuse containing garbage shall be collected at least twice weekly. Where suitable collection service is not available from municipal or private agencies, the mobile home park operator shall provide this service. All refuse shall be collected and transported in covered vehicles or covered containers.

12.5

Where municipal or private disposal service is

not available, the mobile home park operator shall dispose of the refuse by incineration or transporting to a disposal site approved by the health authority.

12.6

Refuse incinerators shall be constructed in accordance with engineering plans and specifications which shall be reviewed and approved by the health authority or other authority having jurisdiction.

12.7

Incinerators shall be operated only when attended by some person specifically authorized by the owner or operator of the mobile home park.

SECTION 13: INSECT AND RODENT CONTROL

13.1

Grounds, buildings and structures shall be maintained free of insect and rodent harborage and infestation. Extermination methods and other measures to control insects and rodents shall conform with the requirements of the health authority.

13.2

Parks shall be maintained free of accumulations of debris which may provide rodent harborage or breeding places for flies, mosquitoes and other pests.

13.3

Storage areas shall be so maintained as to prevent rodent harborage; lumber, pipe and other building material shall be stored at least one foot above the ground.

13.4

Where the potential for insect and rodent infestation exists, all exterior openings in or beneath any structure shall be appropriately screened with wire mesh or other suitable materials.

13.5

The growth of brush, weeds and grass shall be controlled to prevent harborage of ticks, chiggers and other noxious insects. Parks shall be so maintained as to prevent the growth of ragweed, poison ivy, poison oak, poison sumac and other noxious weeds considered detrimental to health. Open areas shall be maintained free of heavy undergrowth of any description.

SECTION 14: FUEL SUPPLY AND STORAGE

14.1

Natural Gas System

(a) Natural gas piping systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

(b) Each mobile home lot provided with piped gas shall have an approved manual shutoff valve installed upstream of the gas outlet. The outlet shall be equipped with an approved cap to prevent accidental discharge of gas when the outlet is not in use.

14.2

Liquified Petroleum Gas Systems

(a) Liquified petroleum gas systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

(b) Systems shall be provided with safety devices to relieve excessive pressures and shall be arranged so that the discharge terminates at a safe location.

(c) Systems shall have at least one accessible means for shutting off gas. Such means shall be located outside the mobile home and shall be maintained in effective operating condition.

(d) All LPG piping outside of the mobile homes shall be well supported and protected against mechanical injury. Undiluted liquified petroleum gas in liquid form shall not be conveyed through piping equipment and systems in mobile homes.

(e) Liuqified petroleum gas containers installed on a mobile home lot shall be securely but not permanently fastened to prevent accidental overturning. Such containers shall not be less than 12 nor more than 60 U. S. gallons gross capacity.

(f) No liquified petroleum gas vessel shall be stored or located inside or beneath any storage cabinet, carport, mobile home, or any other structure, unless such installations are approved by the health authority.

14.3

Fuel Oil Supply Systems

(a) All fuel oil supply systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

(b) All piping from outside fuel storage tanks or cylinders to mobile homes shall be permanently installed and securely fastened in place.

(c) All fuel oil storage tanks or cylinders shall be securely fastened in place and shall not be located inside or beneath any mobile home or less than five feet from any mobile home exit.

(d) Storage tanks located in areas subject to traffic shall be protected against physical damage.

SECTION 15: FIRE PROTECTION

15.1

The mobile home area shall be subject to the rules and regulations of the (name of municipality) fire prevention authority.

15.2

Mobile home parks shall be kept free of litter, rubbish and other flammable materials.

15.3

Portable fire extinguishers of a type approved by the fire prevention authority shall be kept in service buildings and at all other locations designated by such fire prevention authority and shall be maintained in good operating condition.

15.4

Fires shall be made only in stoves, incinerators and other equipment intended for such purposes.

15.5

(a) Fire hydrants shall be installed if the park water supply system is capable to serve them in accordance with the following requirements:

1. The water supply system shall permit the operation of a minimum of two one and one-half inch hose streams.
2. Each of two nozzles, held four feet above the ground, shall deliver at least 75 gallons of water per minute at a flowing pressure of at least 30 pounds per square inch at the highest elevation point of the park.

(b) Fire hydrants, if provided, shall be located within 500 feet of any mobile home, service building or other structure in the park.

SECTION 16: MISCELLANEOUS REQUIREMENTS

16.1

Responsibilities of the Park Management

(a) The person to whom a license for a mobile home park is issued shall operate the park in compliance with this Ordinance and regulations issued hereunder and shall provide adequate supervision to maintain the park, its facilities and equipment in good repair and in a clean and sanitary condition.

(b) The park management shall notify park occupants of all applicable provisions of this Ordinance and inform them of their duties and responsibilities under this Ordinance and regulations issued hereunder.

(c) The park management shall supervise the placement of each mobile home on its mobile home stand which includes securing its stability and installing all utility connections.

(d) The park management shall maintain a register containing the names of all park occupants. Such register shall be available to any authorized person inspecting the park.

(e) The park management shall notify the health authority immediately of any suspected communicable or contagious disease within the park.

16.2.

Responsibilities of Park Occupants

(a) The park occupant shall comply with all applicable requirements of this Ordinance and regulations issued hereunder and shall maintain his mobile home lot, its facilities and equipment in good repair and in a clean and sanitary condition.

(b) The park occupant shall be responsible for proper placement of his mobile home on its mobile home stand and proper installation of all utility connections in accordance with the instructions of the park management.

(c) No owner or person in charge of a dog, cat or other pet animal shall permit it to run at large or to commit any nuisance within the limits of any mobile home lot.

16.3

Restrictions on Occupancy

A mobile home shall not be occupied for dwelling purpose unless it is properly placed on a mobile home stand and connected to water, sewerage and electrical utilities.

SECTION 17: PENALTIES[1]

Any person who violates any provision of this Ordinance shall upon conviction be punished by a fine of not less than .....dollars nor more than .....dollars; and each day's failure of compliance with any such provision shall constitute a separate violation.

SECTION 18: CONFLICT OF ORDINANCES: EFFECT OF PARTIAL INVALIDITY

18.1

In any case where a provision of this Ordinance is found to be in conflict with a provision of any other ordinance or code of this (name of municipality) existing on the effective date of this Ordinance, the provision which, in the judgment of the health authority, establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail. In any case where a provision of this Ordinance is found to be in conflict with a provision of any other ordinance or code of this (name of municipality) existing on the effective date of this Ordinance which establishes a lower standard for the promotion and protection of the health and safety of the people, the provisions of this Ordinance shall be deemed to prevail, and such other ordinances or codes are hereby declared to be repealed to the extent that they may be found in conflict with this Ordinance.

18.2

If any section, subsection, paragraph, sentence, clause or phrase of this Ordinance should be declared invalid for any reason whatsoever, such decision shall not affect the remaining portions of this Ordinance which shall remain in full force and effect; and to this end the provisions of this Ordinance are hereby declared to be severable.

SECTION 19: EFFECTIVE DATE[2]

This Ordinance shall be effective on and after the .....day of ....., 19.....

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[1] Since the penalties which may be prescribed for violations will be governed by state constitutional or statutory limitations which vary from state to state, blank space in the Penalty Section of this Ordinance must be filled in by local authorities.

[2] In many states a local ordinance cannot become effective until it has been published or until a specific period of time after adoption has elapsed, etc. Even in the absence of such requirements, however, it will probably be considered advisable to prescribe an effective date which is at least 30 to 60 days later than the date of adoption of this Ordinance to give ample time for compliance.